

THE PANAMA CANAL
CANAL ZONE
Executive Department.

Balboa Heights, C.Z.

May 14, 1921.

Mr Charles W. Powell,
Health Department, The Panama Canal,
Balboa, Canal Zone.

Sir:-

In view of the fact that the Panama Canal has no botanical or horticultural garden of its own and that persons in a position to know have advised this office that you have by far the most elaborate and detailed collection of Orchids on the Isthmus, and that your garden is known to persons and institutions interested in flora and also to many tourists and travelers who have visited here, this office desires to assure you that it is interested in the success and extension of your garden, which it is understood is conducted for educational and scientific purposes, and not for commercial purposes, and commends your project as being in every way a worthy one. If it will be of any assistance to you, you are authorized to make use of this letter in your correspondence with other Horticultural Gardens and institutions in effecting exchanges of plants and in securing their publications.

Respectfully

(Original signed) Jay J. Merrow.
G e v e r n o r .

September 14th, 1921.

Mr. C. W. Powell

Balboa, Canal Zone, Panama.

My dear Mr. Powell:

I have just received a letter from Dr. Standley of the National Museum in which I am informed that you are interested in collecting orchids and that you might be willing to collect material for me. Just at present I am at work on the orchid flora of Central America for Dr. Standley and I am very anxious to obtain a rich representation of the orchids of Panama. For first class specimens I am ready to pay liberally, in fact, I am prepared to pay more than the usual herbarium rates and in some cases I pay part of the expenses incurred by field work. I understand that you are now sending specimens to Rudolf Schlechter of Berlin. Although Dr. Schlechter and I are colleagues and at this time are working jointly on a monograph of the orchids of the world, it seems to me too bad that American material should be sent abroad. We surely can do the work in this country and I intend to do my best to handle material that is sent in to me for determination. Now that my poor friend Rolfe has gone I feel that it is my duty to do my best to keep up orchidology for English speaking people, not that I think for a minute that Science is international, but that I dread to contemplate the future if our types are to be buried in a foreign land. Please let me hear from you soon, and if you are prepared to supply me with orchid material I would welcome a trial package. If you do decide to collect for me bear in mind the fact that in the orchids fruiting material almost always goes into the scrap pile.

Yours very truly,

Orlando C. Cramer

Ames Hill in dense woods, 175 m 9/21/17

North Easton. Mass. September 18, 1921.

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My dear Mr. Powell:

In 1917 specimens of a *Selenipedium* were found at an altitude of 175m. on Ancon Hill. ^{in dense woods} This was on September 22. The material obtained is inadequate and as I would like to make a sure determination perhaps you will be kind enough to help me secure a perfect specimen and if successful in finding one preserve a few flowers in formalin so that I can have drawings made for the Flora of Central America. This orchid is of the Lady's Slipper type and has small flowers about the size of *Cypripedium parviflorum* borne in many flowered racemes at the summit of leafy stems that are palm like in aspect. Perhaps you know the species well. The only species reported from Panama is *S. Chica*, but I have a suspicion that *S. palmifolia* is also a native of the Isthmus. This group is very poorly represented in herbaria and from the few specimens I have seen I am unable to verify the measurements usually given in floras. (5m). It would really be a kindness if you can help in this matter, not only to me, but to botanical science.

I hope my letter of the 14th, September has already reached you and that you will decide to help me in my work on the Central American orchids.

Yours sincerely,

Robert L. Dresser

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Prof Oakes Ames,
North Easton, Mass.

My dear Professor Ames:

I have your esteemed letters of Sep 14 & 18, and I have given them careful consideration.

Before replying to the main questions in your letter of the 14th I wish to clear myself of the unsaid, but the implied charge of unpatriotism in sending my specimens to Europe instead of to the U.S. I am a native of Virginia and my forbears have a recorded and traceable history in that State since the year 1635, hence I could not be unpatriotic.

Now as to the reasons that impelled me to send them to Europe: This will take some space but I deem it essential.

In 1915, after I had been collecting Orchids in a desultary way for several years, studying them curiously at first and then giving them away; I decided to establish in Balboa a garden for the cultivation, propagation and identification of the Panama species; as I had found so many that were beautiful and interesting. I was induced to take this step because I found that there was needed a garden of this sort here, no one either in the Zone or in Panama having any knowledge of the nomenclature or habits of the Orchid. After having spent some two or three years collecting and placing them, using numbers in lieu of names, I began to seriously feel the lack of names. Accordingly I wrote to a prominent Botanical Garden in the States and asked if it would be agreeable for me to send specimens to them for identification. To this letter I received no reply. This stung me,

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but I let it pass. Later I discovered a plant, which upon flowering proved to be a very attractive flower. I was very anxious to know its name. Thinking that perhaps, as Jamaica was so near to Panama, Hope Garden of Kingston could tell me. Accordingly I sent a specimen asking for its name, together with the request that if unable to identify to forward it to (here I mentioned the name of another prominent garden in the U.S.) with request that it would be identified and that I be advised. Hope Garden acknowledged the receipt of specimen but said they could not identify and that the specimen had been forwarded as I had requested. Later Hope Garden sent me a letter from the ----- garden acknowledging receipt of specimen, and the statement that I would be advised. I never heard from it again. This fretted me a little, but I said nothing.

I then determined that if it were possible I would be independent and not ask again, to be rebuffed. So I wrote to booksellers in London and New York asking what books, magazines or pamphlets they could supply on the Orchid. Within a comparatively short time I had purchased everything then obtainable, and set myself to an intensive study of them. Naturally I learned a greatdeal but there was always lacking the ability to identify a large number of ^{Panama} species or varieties. I now know the reason to be that they were not described in any of my then literature. They were new. I have continued to add to my literature until I now have quite an extensive library of English & German, and I am familiar with them from cover to cover.

About this time, in some way, Mr Rolfe learned of my collection and wrote me a nice letter saying that if I desired any determina-

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tions he would be glad to make them for me. At first I sent him a specimen. This started a correspondence which continued until his fatal illness. I sending him a specimen from time to time.

About this time a good friend of mine who was going to Mass on a vacation, and who knew my troubles and desires for varietal names of my ~~pkants~~ plants, said to me, if there was anything he could do for me while in Boston, to speak up. I gave him your name and address, which I had seen mentioned many times in my literature, and requested him to visit your place, to say to you what I had, what I was trying to do, and to ask you if it would be agreeable to enter into correspondence with me on the subject of Panama Orchids? On his return he informed me that he went out to your place but that you were absent, that he explained to your agent in charge, gave him my name, address and he promised to submit the matter to you. I waited some time to hear from you; not doing so I concluded that the Botanical Gardens in the U.S. did not consider me or Panama of sufficient importance to notice.

So, listening to the many requests of Mr Rolfe, I wrote him I would send him a complete herbaria of all of my plants if he would undertake to identify or determine them for me. His reply was very gratifying, he advised that he would be delighted to do so and he also then told me there was much of interest to be learned from Panama. From that time I would send him a package in each mail as I could get them ready. Along in the winter of 1919 I called his attention to the fact that I was not receiving determinations very promptly, and he wrote me substancially- You have sent me so many that are new to me, I have thought it best not to take up the deter-

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minations until I can go to Viena and examine the Reichenbach herbarium, where are deposited very nearly all of the known Panama types. That it would be best for me and for the Orchid world that this be done. That he expected to go to Viena in the early summer of 1921, and he begged me to continue sending specimens and to await that time. This I agreed to and continued to send on specimens until his fatal illness. In fact two packages reached him after he was taken sick, which were sent before I was advised of his illness. I then discontinued sending, having sent him a total of 176 distinct specimens. Soon thereafter I received a letter from the librarian of Kew, advising me that all of my specimens were in the Herbarium and they would be taken up at as early a date as possible.

I will here regress a little. During the summer of 1920, Dr Schlechter wrote me saying that he was advised that I had a large collection of Panama Orchids and he solicited specimens for identification or determination. That he had access to Reichenbach herbarium, and was in possession of Wagners and others. I wrote him then that as I was under obligations to Mr Rolfe, I thought it best not to divide or duplicate specimens. This began a most pleasant correspondence, he sending me his publications and purchased others for me. In our correspondence I mentioned to him that Mr Rolfe had made very few identifications for me and told him Mr Rolfe's reasons therefor. About May 1st last he wrote me saying " now that Mr Rolfe is dead and your specimens laying dormant in Kew with no saying when they will be acted upon, I will be most delighted to have you send your specimens to me and I will faithfully promise that not more than two weeks shall elapse from receipt until determinations

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will be on their way back to you.

Knowing Dr Schlechter well from my literature, his standing and ability as an Orchidist being at the top, and regarding him as being pre-eminently the best one to do this particular piece of work on account of his facilities for reference, I gladly availed myself of his offer and I have sent him up to now over 200 specimens of Panama Orchids. As the largest published number is some 117 you can readily see the great number of new species I have turned up. Dr Schlechter wrote me about a month ago substantially - it is astonishing the number of new species you have discovered and yet it should not be, as Warscewicz only surveyed a small part of Chiriqui and Veraguas and that not thoroughly; Dr Moritz Wagner a very circumscribed part; Prof Pittier and Mrs Rousseau a small part; while it appears that you have explored every nook and corner north of Darien province. In fact he wrote me that so important does he regard my collection, that during the coming summer he will issue a book entitled "Orchidaceae Panamensis Powellianum" .

Well I have not yet made as extensive exploration as that, but I will do so before I quit, including Darien.

I have in my garden about 4000 plants representing some 230 -240 species of Panama. They are all growing well and give me an endless amount of pleasure and study. I am well equipped for their study, having ample literature, a powerful ^{4 inch} hand lens for quick examination or for examination of flower while on the stem; a B & L dissecting microscope, with 3 lenses; a specially designed German floral microscope; and free access to a B & L medical microscope with high & low power lenses. I devote a great deal of my time to the study of my

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Orchids and I know their faces & forms as I do my children.

Looking back, I now think that my rebuffs by the American Botanists was a good thing for me, because they could not then have determined my plants, nor can they do so now for want of access to types; and it forced me to a more intensive study than I perhaps would have made; to the purchase of a large quantity of literature, which I now find quite desirable. Yet, at the time, it piqued me and made me determined I would succeed even without their help. And I have done so. This is evidenced by the enclosed copy of a letter from the Governor of the Canal Zone written last May, and the testimony of Rolfe and Schlechter.

I will now take up the other part of your letter: I have never sold a plant or specimen. I have given some away and I have exchanged many plants with Orchid collectors in other states of the Tropics. I have some 150 varieties of tropical Orchids, other than those of Panama, in my garden.

I will be pleased to co-operate with you on the basis of mutual interest and information. Sending you copies of any publications I may make, or have a hand in the issue- this later will include Dr Schlecht's publications on Panama Orchids - in exchange for like courtesies from you. This reminds me to say that I have not a single one of your bulletins or pamphlets. I have tried several times in the past to purchase them through New York book sellers, but was always informed that they were privately published and could not be had.

I have never heard of the Selenipedium from Ancon Hill that you ask about. Ancon Hill has been cleaned of all timber, excepting a

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gulch extending from top to bottom. This I will explore in the near future and if there are any Selenipediums there I will find them.

I have some dozen plants of the Phragmopedillum caudatum v Warscewiczii from Chiriqui province. None of the P. longifolia or Selenipedium chica. *I am afraid that the Chica is extinct, as the locality where originally found is under Gatun Lake and I have hunted it in surroundings.*

To make you an herbarium of my Panama Orchids would involve an enormous amount of patient labor and take a long time. Nor do I think it necessary inasmuch as Dr Schlechter, your colaborator, is now making ~~x~~ detailed descriptions and drawings of them for his Orchidaceae Panamensis and you will receive a copy of same. You can use these in your forthcoming work.

In a subsequent letter, I will send you a complete list of all Panama Orchids in my garden which have been identified or determined. As it will be quite lengthy, I have not time to make it today. If there should be any special ones in the list which you wish a specimen of and I can spare from my herbarium, or it is in flower so that I can make a fresh specimen for you, it will be my pleasure to send it and no charge will be made.

I will be pleased to hear from you at any time and will take pleasure in replying to any inquiries.

A copy of this letter will be sent to Mr Standley for his information.

Most sincerely yours

C. W. Powell

P.S. I might add that in addition to my other literature, I purchased from The Botanical Magazine all of the ^{Colored} plates and letter press descriptions of all Tropical American Orchids published by them since 1827, over 300~~x~~ in number.

October 20th, 1921.

My dear Mr. Petzell:

Your letter of October 10th. is just at hand. I am simply cashing off a brief note to let you know that I am very sorry to read such a ^{heartening} ~~discouraging~~ account of your efforts to get in touch with congenial souls in the orchid world, as for your reference/ to as I can only say that ^{it} ~~they~~ surprise me and that your message to me was never delivered. ^x As a matter of fact I had not heard of your interest in orchids until Mr. Standley sent me your note. If I am guilty of neglect it has been unconscious neglect and I am sorry.

Under another cover I will send you my complete works as they appear in my serial. I will also ascertain what reprints I have and send them to you. Again I must express surprise as my serial is for sale and is regularly purchased on the open market and is sometimes offered in catalogues. It is not privately published and not runs into six volumes, ^{the seventh being ready for press} I am afraid that you will find the contents of slight value to you as my work for many years has been mostly with orchids of the eastern tropics. If you do find the books valuable perhaps you will accept them as an exchange ^{for herbarium material of your orchids}. In the meantime please believe that it will be a pleasure to cooperate with you in every way.

Yours sincerely,

X It may be that your friend went to the Botanic Garden in Cambridge and left his message with the Herbarium. He did not visit my herbarium at Mall Costa. I am very sure as I do not spend much time in Cambridge it is probable that the Herbarium forgot to make mention of your friend's visit when I made one of my brief tours & inspect.

355 Commonwealth Ave., Boston, Mass.

October 20th, 1921.

My dear Mr. Powell:

Your letter of October 10th is just at hand. I am simply dashing off a brief note to let you know that I am very sorry to read such a discouraging account of your efforts to get in touch with congenial souls in the orchid world. As for your references to me I can only say that they surprise me and that your message to me was never delivered. As a matter of fact I had not heard of your interest in orchids until Dr. Standley sent me your name. If I am guilty of neglect it has been unconscious neglect and I am sorry.

Under another cover I will send you my complete works as they appear in my serial. I will also ascertain what reprints I have and send them to you. Again I must express surprise as my serial is for sale and is regularly purchased on the open market and is sometimes offered in catalogues. It is not privately published and now runs into six volumes. I am afraid that you will find the contents of slight value to you as my work for many years has been mostly with orchids of the eastern tropics. If you do find the books valuable perhaps you will accept them as an exchange. In the meantime please believe that it will be a pleasure to cooperate with you in every way.

Yours sincerely,

My dear Mr. Powell:

I am sending to-day six volumes of ORCHIDACEAE together with some reprints taken from several journals. Whether or not these will help you in your work, I am sure that you will find them worthy of a place in your library of orchidological literature.

I have just re-read your letter of the tenth October and from it I understand that you prefer to send your material to Dr. Schlechter. I am sorry that events have so shaped themselves that you find more pleasure in doing that than in sending it here. However, if you are willing to let me have duplicates of your novelties and other material, that will be surely satisfactory, as, after all, what I am interested in most is a guide to what is being done through actual specimens. It will be very helpful if you will send me duplicates of your orchids as at this time I am anxious to have in hand a very complete set of Central American species for the Flora. Results based on critical examination of specimens are much more satisfactory to me than dependence on printed descriptions which usually result in an undigested compilation.

Your reference to our inability to do good work here through lack of types is worthy of attention. In my herbarium alone, a collection of some thirty or forty thousand sheets of orchids, there is a liberal supply of types including some Reichenbachian and Lindley material. Furthermore I once made a trip to Europe with two assistants, three cameras and some useful pencils and spent several months in the great herbaria of England, France and Holland. For example, in recent work by Schlechter I have noted errors made because of neglect of types, representatives of which are in my herbarium.

You are in a position to do telling work, but more by constructive effort in the study of your plants than by endeavors to detect new species. The field worker deals with living things, with flesh and blood, if you

like, while the laboratory on *hulbarum* water is comparable to *an* ethnologist who ^{has} determined to study human beings in a morgue and to base his studies of functions on tissues that have been long dead. Too little work has been done among orchids in the field, and surely the opportunity to see orchids year in and year out in their native haunts or at least under nearly natural conditions, opens the way to a wonderland of discovery. I would rather work out the life history of one orchid than write descriptions of a century of them.

We must know our species, that is true, but we should realize that in the final analysis myriads of poorly differentiated forms posing as species and countless genera based on slender threads of evolutionary evidence, are not helpful. Of the forty or more thousand genera that personal opinion has set before us some thirty thousand, I believe, are now regarded as cumbersome synonyms! Is further comment necessary? As I tell Dr. Schlechter, an alteration in the scale of the thermometer does not change the temperature and if we make the spaces between the degrees microscopically minute nobody can tell when the freezing point or the boiling point is reached and the thermometer defeats the very purpose for which it was contrived.

I am very much interested in your remarks about *Selenipedium Chica*. The specimen I referred to was collected on Ancon Hill, September 22, 1917 by Ellsworth P. Killip at an altitude of 175 meters. I determined the specimen as *S. Chica*, but I am not satisfied with my determination.

The seventh volume of *Orchidaceae* will be sent to you on the day of publication. It will contain sections that will, I am sure, be of interest to you. I will also send you in a few days a copy of a little article I wrote for the October *Orchid Review* on the mycorrhiza of *Goodyeara pubescens*. Another paper that should interest you, is one on *Spiranthes*. This goes to you this afternoon.

I wish you had written to me more *explicitly* regarding discourteous treatment so that I could have picked out myself if I have been an offender. And I wish I knew if it was the Harvard Botanic Garden that deserved criticism, and thrust aside so lightly your desire for scientific ties in the United States. In my letter written last night I attempted in a side-note to explain how a message might have failed to reach me if delivered in Cambridge. Perhaps a more detailed explanation may be worthwhile if you are interested. My herbarium, until last winter, was situated twenty-seven miles from Boston. Communications addressed to me there usually received prompt and sympathetic treatment. My laboratory in the University is at Forest Hills in the Bussey Institution. Although I am Director of the Botanic Garden of Harvard University I depend on a Head Gardener to keep the classes supplied with materials and as the Garden is simply for the propagation of specimens for the laboratories I spend very little time there. A Head Gardener is not always as efficient in attending to details of correspondence and executive work as one might suppose and his mind is usually so occupied with routine duties that outside relations of the Garden do not interest him. Consequently communications connected with distant projects have very little importance and he may make errors in judgement as to the necessity for their transmissal and never call them to the attention of the Director. So much simply for justification of myself if against me you hold any resentment or harbor a hostile thought.

I shall always regret that an opportunity to put forth in co-operation with you a volume of Orchidaceae similar to the one on the orchids of Mt. Kinabalu, or to the one of the orchids of the Philippines has been lost.

Yours sincerely,

355 Commonwealth, Avenue, Boston, Mass. Oct. 26, 1921.

My dear Mr. Powell:

I am sending to you under separate cover a pamphlet on arrow poisons that may be of interest for your botanical library. With it I have included four photographs of my economic plant charts that may appeal to you as the position of the orchid family is clearly shown as we place it in the vegetable kingdom. As the photographs were made before the original colored charts were proof read a few errors in the names of the species will be noted. Please overlook these. The main purpose of the charts is clear.

The seventh volume of my orchid book went to press yesterday. As soon as the printing is done a copy will be forwarded to you.

Yours sincerely,

Arthur Cronquist

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My dear Prof' Ames:

I have your esteemed letters of Oct 21st, and I have read them over several times to thoroughly get your view point, and I must admit that I am more than pleased with them. They have brushed away the cobwebs of misunderstanding and removed the feeling of hurt pride to such an extent, that I now feel rather sorry that I did not make further and renewed efforts to get in touch with you some 3 years ago. ^{Had}_h I done so, what an amount of worry over the unknown, and how much heart burn might have been removed. I now feel sure that your explanation as to why you did not write me then, is the correct one. My friend, who is not now on the Isthmus and cannot be consulted, I know went to some garden which was recognized by your name being attached to it, as I had told him when leaving, that any one in Boston could tell him the location of the Ames gardens. I will also clear Harvard Botanical Gardens as being one of the other two referred to in my letter. One of them has within the current year made the "amende honorable".

My letter was not written in the nature of a complaint, but as an explanation of why I had sent my specimens to Europe. It goes without saying that I had much rather my types were in the U.S. than in Kew or Berlin; and I assure you that you are mistaken in saying- "I am sorry that events have so shaped themselves that you find more pleasure in doing that, than in sending them here". Events did so shape themselves, but not the pleasure etc.

One more word on the subject of determinations to justify my remark and we will drop it- being sorry that I made it.¹ You will remember that Reichenbach gave out the names of many Panama species with imperfect or no descriptions, besides locking up his herbarium with many types unannounced, but named.² Mr Rolfe, with all of the facilities of Kew, was unwilling to make these determinations until he had examined the Reichenbach herbarium in order to avoid synonyms and confusion.

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You must remember also that at the time I was unacquainted with you or with your facilities. These I think sufficient to justify me in my conclusions.

However, as I promised Dr Schlechter to send him my complete specimens I feel obligated to do so; this does not in any manner preclude my sending specimens to you, but it does give him priority right of determination and naming.

I most heartily agree with you as to the multiplication of genus and species, as practiced by the Botanists in the past. I do not believe that every little difference should be distinctively named. There has been so much confusion because of this, that one of my first instructions to Dr Schlechter was along these lines and specifically-" I am building up this garden for the good of the public, because there is not and never has been a botanical garden in Panama; and, also, because I love flowers and the science of botany. Hence I wish determinations to be just right in every particular. I wish them to be so correct that they will be the type or standard from which all Panama Orchids will be named in the future".

I am not striving to find new species but am striving to collect together all of the Panama species in one garden, where they can be seen growing and can be studied in the living state by any one so desiring. You can readily understand that the absolute necessity point had been reached - with 200 to 225 Panama species, largely unnamed, with many tentatively named- that I was compelled to avail myself of the first reliable source from which to get reliable names. Plant names are essential in order to distinguish them, for systematic study, and to answer the many questions asked by visitors. Numbers are fairly well for record work, but they fall far short of names. Even now, I may be shown a plant and asked its name and I will answer promptly "that is No --, but frequently yet have to refer to records for names. This is because I used numbers so long that they were so learned and became identified with the plants.

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To send on specimens quickly to Dr Schlechter (after Mr Rolfe's death, without his making the determinations) in order to get these names the more quickly, I very nearly wrecked my herbarium, and I must await new flowering in order to make me new specimens to replace those sent him. This being so, would you mind sending me a model of one ~~sheet~~ herbarium sheet of any old orchid, in order that I may see your style, so that I can reconstruct my herbarium along the lines adopted in the U.S. I will thank you heartily for it.

As I wrote you in my last letter I will send you such specimens as you may desire from my list, that I can spare from present herbarium, or that are in flower that I can make you a fresh specimen of. Those which I cannot now send, I will do so as soon as plants flower again. In time you will thus receive a set of type specimens (all with my herbarium number and the names as per Schlechter) and it will give me pleasure to do this. How much detail in description and in specimen do you wish?. Do not make it unnecessarily heavy, because I am a Government employee and can only work on it after hours or at nights- having of course to give other matters a certain portion of my time. Also, for the reasons given in the preceeding paragraph just above, it will be of necessity a divide.

Mr Rolfe thought so much of my specimens and of Panama possibilities that he had made all arrangements to pay me a visit, when he was taken ill. He wrote me most enthusiastically about it, and you can see by Mr *Staff's* letter herewith, how he must have impressed his staff. Kindly return me the letter.

To tell you that I thank you for your Orchidaceae would be superfluous, yet I will tell you so. I did not for a moment expect them, and I consider them a most valuable addition to my library. I was hoping for your bulletins and reprint articles. I feel the day will come when you will know how much I do appreciate them. They have not yet arrived.


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I am making a trip of about a month to the mountain section of Chiriqui about the 5th of January, from which I anticipate considerable new materials and the strengthening up on some I now have.

I have discovered some beautiful "Horticultural" flowers as distinguished from the "Botanical" in my researches in Panama.

In justice to you I am sending a copy of this letter to Mr Standley.

Before closing this I wish to again express regret that I did not get in touch with you some 3 or more years ago.



Camp
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Dr Paul C. Standley,
Smithsonian Institute,
Washington, D.C.

My dear Dr Standley:

I am sending you herewith a further letter to Prof Ames, in answer to one from him. I am doing this because in my first letter there were some reflections on him, which his last letter have entirely removed, and cause me ~~some~~ regrets that it was so written.

I am hoping to hear from you at an early day advising me that you will make the trip to Chiriqui with me.

With assurances of esteem,
Sincerely yours,

C. Powell

Dear Prof Ames: -

Further as to Mr Rolfe's proposed visit to Panama - see July 1921 Orchid Review page 7, latter part of top paragraph, 8 lines from end of paragraph.

Sincerely

C. Powell

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My dear Dr Ames:

I am in receipt of the two packages of books, so kindly sent me. What a monumental work is the Orchidaceae. There is only one word fitting to describe them- "magnificent" in their completeness and in their quality. How I delight to have them as a part of my library.

Ofcourse, I have not had time as yet to get well into them, but I assure you that I will do so extensively.

I have been holding back my list of plants awaiting the latest one from Dr Schlechter, and I am sending you herewith a list of some 134 in number, There are yet some 60 or more enroute between here and Berlin- both ways- and in Dr Schlechters hands, with some 40-50 yet to be sent him. You can take the list and rule out those of which you have specimens ^{of} and therefore do not care for others, returning it to me, and I will prepare and send you as fast as possible the specimens. Other lists will be sent you from time to time as received from Dr S.

Now, I am not one of those men who think they "know it all" but I am willing to sit at the feet of wisdom and learn more. Hence I invite suggestions from you along any lines which your experience may suggest. Enlarge on the idea expressed in your letter wherein you say- "you are in a position to do telling work"- intimating the leaving of ~~h~~ the dry bones of botanical specimens to the specialist- the herbarium worker- and confine ~~your~~ myself to the living plants. Still, I think I should have a good herbarium here for reference, dont you?.

I wish to send you good specimens, and for this reason they may not come on ~~as~~ fast and in volome of numbers at a time, Shall I send loose in sheets or mounted. Do you wish them cured with the Meth-yl and corrosive ~~sub~~ mixture, or shall I leave that to you?.

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If I receive the model sheet in time, I will endeavor to prepare specimen as therein shown- if you should so wish it.

There is one thing which has always troubled me, the technical names of parts of ^{Orchid} plants and flowers. I once asked Mr Rolfe if ^{an illustrated} a glossary ~~fixxxxx~~ of the technical names of parts had been issued and he told me there was none in England and he did not think in the U.S. It has therefore been impossible for me to learn all of the technical names of parts. So if I make errors, you will excuse and correct.

Dr Schlechter writes me that he is now working on "copy" for his bulletin of " Orchidaceae, nov et crit " and it may be that you would prefer to await that for descriptions of the specimens I send to you. This will be issued before a very long time elapses.

How glorious it would be if you could go with me about Jan 5th to the Chiriqui region- the floral paradise.

Very sincerely yours

CW Powell

BALBOA, C. Z., PANAMA November 15, 1921 192

My dear Dr Ames:

I am today in receipt by your favor of_
" A list of ~~####~~ plants from which Arrow poisons are prepared," and
also of the four beautiful ^{charts.}photograph~~ie~~^{ic}. Will you kindly accept, at
this time, my thanks in lieu of something better?.

I am desirous of obtaining a copy of the latest
edition of Grays ~~Manual~~ Manual of Botany. I have no idea of its cost or
~~of~~ publishers. Will you kindly advise me in your next letter?.

With assurances of esteem,
Sincerely yours,

C. W. Powell.

355 Commonwealth Avenue, Boston, Mass. November 17th, 1921.

My dear Mr. Powell:

To-morrow I intend to get off to you a long letter. This is simply a short one to tell you that I have prepared a model herbarium sheet for you which goes off in the next mail.

I have prepared the genus cover according to the system I have adopted. Of course it is simpler to write the name of the genus than to set up type for it. But I want you to see what I consider a model. The number before the generic name refers to the systematic sequence of the genus. You can, if you prefer, arrange your genera in alphabetical order. But that is not scientific. An herbarium should show relationships. The specimen is mounted with surgeons adhesive tape. That is the best material as it does not crack as easily as ordinary gummed linen. An herbarium specimen should exhibit the entire plant. Flowers are not sufficient for a sure diagnosis. I have chosen one of my labels that indicates a critical set. It is perhaps a little large for ordinary purposes. The attached field data label and the paper pocket complete the model sheet. The size of the paper is standard, also the size of the genus cover. If you copy this model specimen you will be in conformity with the great herbaria of the world.

Yours very sincerely,

Dr. C. W. Powell,
Balboa, Canal Zone, Panama.

P.S. The specimen and the off letter is enclosed in the box.

355 Commonwealth Avenue, Boston, Mass. November 20, 1921.

My dear Mr. Powell:

I sent off to you by the afternoon mail on Monday last another package of reprints. Two of these were written by my former laboratory assistant, Dr. R. G. Leavitt. His paper on the genus *Eria* was the result of painstaking studies of the types in European herbaria and will give you an idea of the methods I have adopted in doing my work. When we undertook the study of Philippine orchids for the Bureau of Science at Manila in 1905 I had a very inferior collection of Malayan types. Not a single Cuming specimen was available in this country and Lindley's types were at Kew, Blume's at Leiden, and Reichenbach's available types were here and there in different European collections. I took up this work with reluctance and dread. I was not in a position to determine anything outside of the usual horticultural species from Java and Borneo. My collection of living orchids, some 200 genera and 2,000 species, was inadequate even for a beginning. It was during an absence that my fate in this undertaking was sealed! Dr. Leavitt on his own responsibility accepted the invitation of the Philippine botanists to handle Philippine orchids. When I realized my predicament I ordered Leavitt and my other assistant, Mr. Eaton, to assemble all of my material of Malayan orchids, to pack up all of the critical literature in the library, to provide three dissecting microscopes with complete equipment and to make ready three cameras. I told them to be ready to accompany me to Europe at the end of two weeks. I assigned to Dr. Leavitt the genus *Eria*. We went to Europe on scheduled time. First we exhausted the British Museum collections. Every Cuming sheet was studied, photographed and described. Camera lucida sketches were made of moistened flowers. Many Reichenbachian identifications and types or duplicate types were found. Then we went to Kew. What we

missed there, the Director kindly supplied later, in the way of tracings from types. We obtained a complete photographic record of the orchids in the Linneanean Herbarium. Then Leavitt went to Leiden to consult, draw and photograph Blume's types of Javan species. Eaton went to Paris and worked like a slave with pencil and camera. Some of the photographs he obtained served a useful purpose in Fascicle IV of Orchidaceae. I remained at Kew and found recreation in a close study of American types. Now--- in sixteen years I have handled the collections of some forty or fifty collectors who have ranged from Palawan to the islands north of Luzon. From about two hundred species I have increased the number of species known to come from the Philippines to about one thousand. My herbarium of Philippine orchids is unrivaled and material is coming in from new and unexplored regions pretty frequently. Untouched specimens fill over one hundred herbarium pigeon holes!

I knew Rolfe well. He wanted very much to enter into joint authorship with me on the Philippine venture. Hemsley refused to let him do this as he was anxious to have Rolfe concentrate on the British Guiana flora. A little story about Rolfe may interest you at this time. When I was at Kew in October 1905 he frequently came to my table to talk about orchids and was very much interested in my methods of work. He always expressed an interest in my microscope with camera lucida attachment with which I made records of types. One day he brought to me an analysis of a new species and asked to be allowed to use my equipment. He got on famously and presented to me the results of his efforts. On my last afternoon at Kew I called to Rolfe and told him that if he would relieve me of the trouble of lugging my microscope and attachments back to the States he could have them. Shortly after my return to North

Easton I received from Rolfe a complete set of camera lucida drawings of the Kew types of a genus in which I was very much interested.

Your promise of specimens is delightful. Whatever you send to me will be treasured and serve a useful purpose. In making specimens it is always well to include foliage, as flowers are, by themselves, very unsatisfactory. If dipt in boiling water for a few minutes or if subjected to heat the fleshy parts of orchids dry very well and the leaves adhere better to the stems. The flowers should not be put in water, but a little experience in the application of heat through several thicknesses of thick blotting paper with an ordinary flat-iron will enable you to keep the colors pretty well. Notes as to color, outline sketches of foliage where it is inconvenient to spare actual material are most useful, and then any notes as to locality and time of collecting are necessary to make a specimen botanically good.

When you receive the model herbarium specimen you asked for you will note that each genus is given a special cover with the name of the genus at the lower left hand corner on the outside. The number of the genus is placed first, and the genus covers are filed in cases of the proper size, according to the numerical sequence adopted. A card catalogue of the genera alphabetically arranged will make it possible to turn to any given genus. If you wish any more information as to herbarium methods please let me give it to you.

By this time my set of Orchidaceae must have reached you. If by any chance it goes astray another set will be forwarded at once. Vols. 4, 5 and 6 are very beautiful specimens of printing and for that reason should be of interest for you if botanically they fall outside the realm of your immediate interests.

Yours very sincerely,

CA.

355 Commonwealth Avenue, Boston, Mass. November 22, 1921.

My dear Mr Powell:

Your letter with enclosed list of Panama orchids arrived at noon to-day. I got off to you in the first mail a package of orchid plates marked up in accordance with your request as I understood it from your letter. That is I took some plates that I had on hand and simply wrote in the margins and elsewhere the usual botanical terms for the different structures. If I have failed to give you what you want all you have to do is to be more explicit. I am at your service. I have ordered sent to you from New York a little book written by a good friend of mine who was formerly Director of the Ceylon Gardens. This book is not a treatise on orchids, but it is a mighty big library in parvo and you will be pleased to have it. The section devoted to orchids will answer some of your questions and make some of the more difficult terms clear to you. So much for that.

You ask about field work that can be done by a man in the tropics. My *Spiranthes* paper will give you a hint, also my *Goodyera* paper. For example, how do orchids come up from seed in the tropics? Are seedlings to be found among the parent plants? If so, are they also to be found at some distance from the parent clumps? Are tree colonies made up of old plants or of comparatively young plants. In other words, does the same thing take place with the epiphytes in Panama that I have shown takes place in the case of Goodyera pubescens? In my tropical expeditions I have noted seedlings, but I failed to attempt to explain their distribution. Careful descriptions of orchids that are only known from dried specimens will always be worth while. If you want more

Nov. 22./21.

details I will think up some more. The influence of mycorrhiza on the distribution of orchids is an untouched field. I believe my Goodyera paper is the first suggestion based on actual observations in the field.

A herbarium is an absolute necessity. The man who studies the proper methods to make good specimens confers a great benefit on the herbarium botanist. C. G. Pringle made wonderfully good specimens of Mexican orchids. Harry Johnson who recently returned from Guatemala brought me a perfectly prepared set that he made at Coban in Dept., Alta Verapaz. It is a great pleasure to work through the specimens. Just as soon as you feel sure of your comparisons you ought to get together sets and distribute them as your contribution to orchidology. A man who studies the preparation of his dried material goes down in Botanical History.

There is one way in which you can help me if you wish to take the trouble. Put some flowers in formaline solution of the more common species so that I can have them drawn for Dr. Standley's flora.

I have marked your list almost in toto because I want to have the species represented in my herbarium from Panama and I want them to authenticate my geographical records for the Flora. Whenever your specimens are cited you will be given credit in the usual way.

I enclose Stapf's letter that you wished returned to you.

With the best of good wishes, and at your service,

Oakes Ames

THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

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Balboa, Canal Zone, Panama.

November 25, 1921.

My dear Dr Ames:

I am further indebted to you for another package of reprints. I was particularly interested in that of Dr Leavitt on the " Geographic distribution of nearly related species" I read it over carefully and it opens up a vast study- too much I am afraid for me to even contemplate dipping into, yet it interests me to see what others postulate.

An idea occurs to me: what will the attitude of the Dep't of Agriculture under plant quarantine 37, to the admission of herbarium specimens. Its provisions are very drastic. Had you not better get from them a permit for the importation of dried herbarium specimens in advance, and send it to me. The Post Office regulations require that all classes of plants, flowers or seeds be refused for transmission in the mail unless under permit from the Dep't of A. Take the matter up with them, unless you already have a ruling on the matter.

I have decided that it will be much better that you have a complete herbarium of Panama ~~plant~~ species, and I will send you one. You will therefore not return to me the list, but retain it and check out specimen as it arrives. Thus you will ultimately have in your herbarium a full herbarium of Panama Orchids, not consolidated with other specimens.

I am sending you herewith a few of Panama beautiful and historic places. Thought they would interest you.

Sincerely yours

C. W. Powell

November 28, 1921

Dear Mrs. Powell: your letter of November ¹⁵~~25~~th. has just come.
 as I had the privilege to do for Grays New Manual,
 several copies were presented to me. I am sending you one of these.
 It is not new, but well, I am sure, serve your needs. You already
 have a reprint of the orchid section. — I am sure I sent you one.
 I cannot imagine what use you will find for this northern flora,
 That, however, is not my business! A Boston Physician
 who was interested in the action of certain vegetable foods on
 the human system once came to me much discouraged because
 he could not find an account of the Coco-nut in Grays
 Manual. I hope you do not expect to find Codonarctus
 tucked away somewhere among the orchids!

With the best of good wishes
 for the coming Christmas Season,
 Yours sincerely,
 Oakes Ames

Copy.

BALBOA, C. Z., PANAMA December 2, 1921. 192

My dear Dr Ames:

I am in receipt of your much esteemed letter of Nov 20 and also the specimen sheet. Please accept my many thanks for both.

I have placed down to dry for you a number of plants and I hope to begin the sending before many days pass. You must know that the humidity here is from 80 to 90 from May to December and plants dry out very slowly.

Thinking it might interest you to know it, I will say that I have decided to build you up an herbarium of all Panama species, giving you at this time as ^{rich and} perfect specimens as it is possible and preserving a record of those which are deficient, in order to perfect the specimen at some future time. (X)

Transportation in Panama are of a negligible quantity, consisting of a very few trails leading from one prominent place to some nearby village. Off of these trails it is the densest jungle. This is the reason that other collectors have made such a poor showing in their ^{number} ~~variety~~ of species. They have confined themselves to these trails. I am a natural woodsman, possessing the homing instinct wonderfully developed. I leave these trails and penetrate for miles into the densest jungle, wander around in all directions for hours and then strike out for the trail with unerring certainty. All transportation out of the jungle to the trail must of necessity be on ones back, or on that of a carrier. This limits the number of plants one can get out with. It is a continual cutting your way. Thus in many cases the number of ^a varieties ~~is~~ is limited to one or at most to two plants, if they are at all large. I have stopped and thrown away a plant to make room for some new species which I would come across enroute out of the jungle.

(X) I will not label or number covers - leaving that for you to do, in conformity with your others.

BALBOA, C. Z., PANAMA 192

To give you some idea of these jungles- fifty feet away one cannot see ones companion, the under-growth is so thick. Thus it frequently so happens that I reach my home or camp with ^{one} only/plant of a species. I have personally collected a large majority of my plants. I always carry with me a nearly grown boy to climb trees for me, as this beyond my ability. *one can go over the same territory 3-4 times to advantage. As an illustration. Year before last I surveyed a river valley, as I thought. Last year I returned to get additions to some plant and I went over the ground again. I found more new plants the second trip than on the first.* When I have a little more time from specimen making I will take ^{carefully} the greatest pleasure in reading over/all of the special and reprint articles you so kindly sent me. I ~~read~~ some one of them now at every convenient opportunity, and I feel sure that my comprehension is being both stimulated and enlarged. Again, very many thanks for your courteous consideration in sending them.

I have no recent letter from Dr Schlechter, but I am expecting one in the next mail, and I feel sure that if I do hear he will send me another list of determinations, a copy of which will be sent on to you.

Do you know Dr Duncan S. Johnson of John Hopkins University, he wrote me on October 27th asking me for details of cost of a trip to the Chiriqui region and also when I was going up there. To this I wrote giving all information and advised him of my projected trip in early January. From his letter I would not be at all surprised if he should come down and go at the same time I do. I will be much pleased if he should come.

Very sincerely yours

C. W. Powell

BALBOA, C. Z., PANAMA December 5, 1921 192

My dear Dr Ames:

I am sending you tomorrow morning by registered post a package containing the following specimens, sheeted up according to the model you so kindly sent me-

No 9 Trichopilia, Powellii-	Schtr.	N.S.
21 Sobralia, panamensis -	Schtr	N.S.
112 Epidendrum, Rousseauae-	Schtr	
122 Polystachya, panamensis-	Schtr	N.S.
123 Restrepia, Powellii -	Schtr	N.S.
146 Pleurothallis, Powellii-	Schtr	N.S.

sheets

Will you kindly advise me whether these/meet your approval, or make such critical suggestions as seem fitting.

I am also returning you the model sheet, it having served its purpose, and it may be of value to you in making exchanges with some other of your correspondents.

I do not know, but think there will be ^{not any} ~~no~~ customs duty on specimens, but fearing such a possibility, I am marking them low in value on Customs Declaration, in order to restrict the charges if such there be.

The adhesive tape used on specimens is the only kind in use in the Health Department. It is heavy but it works all right.

Do you wish specimen sheets sent to you at Boston or to the Ames Botanical Laboratory at North Easton ?.

I am sorry to ask so many questions but it seems there are many small details to be worked out before the " machine " gets to working smoothly.

Very sincerely yours

C. W. Powell

* Did you ever hear of any other Epidendrum flowering from the base, except E. Stamfordianum? If not, this is a novelty surely.

Berlin, December 14, 1921.

My dear Mr Powell,

You ask me to write you what I think of the scientific value of your Orchid collection and explorations:

Until very lately we knew very little of the Orchid flora of Panama and the little we knew was almost inaccessible, being piled up in the Reichenbachian Herbarium. The few species that were described by other botanists were only a small proportion of the ~~what~~ about 150 species that were said to occur in Panama (including the Chiriqui mountains).

Through your extensive and careful explorations not only the greater part of the half lost species were re-discovered, but besides a large number of new ones discovered; so that we have now a fair, ~~or~~ although not yet complete knowledge of this Orchid-flora. I would say, that next to the explorations of the Orchid-floras of the Philippines and of the Guianas, your exploration of the Orchid-flora of Panama is one of the most important facts in Orchideologie during the later years.

Besides augmenting very considerably the list of Orchids in Panama, you have found a number of species in this region which throw a very different light on some facts in Plant-geography than we had before. If you are able to continue your collections and explorations in the same manner, I am sure that we will soon know very much about Panama Orchids, more than anybody ever expected there.

Your collection will always remain a standard for the study of Panama Orchids.

Yours very sincerely

R. Schlechter.

*This is a copy of a letter from Dr Schlechter
received a few days before I left on my
trip to Chiriqui.*

BALBOA, C. Z., PANAMA December 15, 1921 192

My dear Dr Ames:

I am further indebted to you for copy of Grays Botany and the marked plates. The plates gave me some information desired. If you have a drawing of a Gongora will you kindly mark the names on the drawing of the several parts and send me. I have ~~vainly~~ tried to make them out from printed descriptions but in vain. I have in the garden 8 distinct varieties of this plant. Some of the parts I know.

On December 6th I sent you by registered mail a package of specimens and I have another lot all ready to go, but am waiting to hear from you regarding the possible action of the Dep't of Agriculture. The lot sent on 6th were in the nature of a test.

I am returning you herewith the list, which you can retain as a check list. I have not yet had another list from Dr Schlechter- as soon as it arrives I will send you a copy.

I will gladly send you any flowers you may wish in Formalin and I would suggest that you select them from the lists *now* and advise me, so that I can put up as they may flower. I have no *tr* mailing liquid cases with bottles and cannot get them here, because no one has any use for such. Purchase for me, and advise me of the ^{and cases.} cost which I will remit, the necessary bottles. I have aplenty of the Formalin.

Very sincerely yours

C. W. Powell

I am on track of the "Selenipedium Chaco". An old Indian from whom I buy plants was in yesterday, and he told me he knew it and believed that he could get me some plants. He says it grows about 15 feet high, which is as I have understood it. I think perhaps we will now get some. He lives way up the Chagres river valley, and only comes in from time to time.

Dear Mr. Powell: This is a hurried reply to your welcome letter of Dec. 5, which has just arrived.

You ask about lateral flower-shoots in *Epidermum* allied to *E. Stamfordianum* and *E. Rousseauae*. I only know the later species from Schiebeler's description based on fragmentary material compared by him with *E. amosum* Jacq. and from the fragmentary material you sent to R. R. Ruffe. There is a fourth species, *Epidermum laterale* R. Ruffe from Costa Rica that is in part characterized by a lateral inflorescence. This species I know from the description only. I have not seen specimens. Aside from these species I do not recall anything that are in the same category. This does not mean, however, that my memory is perfect or my knowledge complete!!

You may be sure that the half dozen orchids you are sending to me will be very acceptable. I am looking for them with that enthusiasm which seems a part of my profession.

In answer to your question, asked in your letter of Dec. 20, regarding herbarium specimens under the quarantine laws. I am pleased to inform you that dried specimens for scientific study do not come under them.

The reason for Schiebeler's silence & explanation by the way but that he has been ill from overwork.

My best wishes go to you with sincere thanks for the fascinating pictures of Panama. Some of them resemble scenes I saw in 1911.

Wishing you joyous holidays
Yours very sincerely
Oakes Ames

My address for all purposes is the one given at the head of this letter.



BALBOA, C. Z., PANAMA December 27, 1921/2

My dear Dr Ames:

I will send you tomorrow by registered post the following specimens:

No 16	Cattleya, Deckeri	Reich.f,	
18	Epidendrum, brevicatle	Schtr	N.S.
27	Xylobium, Stachyobiorum	Hemsley	
28	Maxillaria, Powellii	Schtr	N.S.
33	Epidendrum; Stamfordianum	Bateman	
40	Epidendrum, anceps	Jacq	
60	Catasetum, scurra	Reich.f.	
75	Lockhartia, mirabilis	Reich.f.	
81	Notylia, pentachne	Reich.f.	
82	Epidendrum, chlorocorymbis	Schtr	N.S.
91	Pleurothallis; verecunda	Schtr	N.S.
106	Pleurothallis, panamensis	Schtr	
165	Cynoches, chlorochillon	Klotz	
172	Pleurothallis; diuturna	Schltr	N.S.
182	Pleurothallis, rhodoglossa	Schtr	N.S.
206	Epidendrum, equitans	Lindl	

All of which I hope will meet your expectations.

May I ask that, if in going over my specimens you note anything of especial interest or that is unusual to the species, you will make a note of it and transmit your observations to me. I wish to file in my herbarium, thus making it as interesting and as comprehensive as possible.

Your letter of 16th inst was received this afternoon and I at once put up the above specimens to go forward. I have a number more nearly ready, which will go forward in a short time.

355 Commonwealth Avenue, Boston, Mass. JANUARY 1st, 1922.

My dear Dr. Powell:

I send you the best of good wishes for a prosperous and profitable New Year .

The specimens arrived in excellent condition and were most acceptable. I hope there will be many years ahead of us in which it will be my pleasure to thank you for your present kindness and for your continued good will.

I would suggest that you do not take the trouble to mount the specimens you send to me as the weight of the paper adds to the cost of postage and as we have professional mounters in Cambridge who do all our routine herbarium work. I would also suggest that you allow me to have a special label printed for your collection.

I enclose a drawing of a Gongora flower with the parts marked that are usually obscure to one who is not fully acquainted with the terms used in descriptions. I realize that this drawing will perhaps fall far short of answering your needs. Therefore, if you will make a drawing of a flower and send it to me with the parts marked that you wish to know about I will mark it and return it to you. This it seems to me is the best way. You may rest assured that I am ready to do everything within my power to assist you and that it is no trouble at all to help you.

Have you a copy of Darwin's book on the fertilization of Orchids by Insects? If you have it not and you wish me to pick up a copy for you I will be pleased to do so.

I will send you some mailing tubes together with a list of species of which flowers would be acceptable . I will also send you directions as to the solution of formalin to use.

I have just heard from Dr. Schlechter that he intends to go to Vienna the last of this month or early in February. I hope his trip will be a profitable one and that he will secure for me a pretty complete record of Reichenbach's American types.

Under another cover I am sending to you a brief paper in which I described seven new species of Panaman orchids. Late in February I hope to be able to send you volume seven of my Orchidaceae. This volume will have material in it that you will find useful.

Dr. Standley must be in Guatemala by this time. I am expecting from his exploration of Salvador some interesting additions to the flora of that little known territory.

In my reference to Darwin's book on the fertilization of orchids by insects I should have told you that I have in my library a copy of the first edition made up of the proof sheets sent to Asa Gray with a letter from Darwin and with Gray's annotations in the margins. Quite a treasure!

With the best wishes in the World,

Yours sincerely,

Oakes Ames.

I have just heard from Dr. Schlechter that

he intends to go to Vienna the last of this month or early in February. I hope his trip will be a profitable one and that he will secure for me a pretty complete record of Reichenbach's American types.

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ilization of orchids by insects I should have told you that I have

in my library a copy of the first edition made up of the proof sheets sent to Asa Gray with a letter from Darwin and with Gray's

annotations in the margins. Quite a treasure!

With the best wishes in the world,

Yours sincerely,

Charles Darwin

January sixth, 1922.

My dear Dr. Powell:

The second package of specimens arrived this morning. I was simply delighted with the way in which they were preserved. If you continue your present methods we will have in this country a most useful and helpful collection of the orchids of Panama.

This morning I went through your specimens that you sent to Rolfe. The Director of Kew has sent to me the complete set with all your notes and Rolfe's observations. Apparently Rolfe did not do much for you, even with the common things that he should have been able to name at sight. This simply proves that the poor fellow, like the rest of us, was simply overwhelmed with work and so taken up with routine duties that he could not do for you what he must have, deep down in his heart, wished to do with a burning desire. I have checked up some of Schlechter's determinations and I am sure that he will revise several of them before he goes to press. You understand, of course, that it is a simple matter to name up specimens tentatively if at some future time you have in mind a critical revision. This is done frequently, but leads, I think, to dissatisfaction in the end.

I sincerely hope that the Indian who knows where Selenipedium Chica grows will obtain specimens for you from which an example may be spared for me. This species is extraordinarily rare in herbaria and has not yet been satisfactorily described from good material. I am anxious to give an account of it in Dr. Standley's Flora. This is one of the orchids of which specimens should be preserved in formalin

Jan. 6, '22. Page two.

2

solution.

Mailing tubes for bottles will be forwarded to you in a few days. I will also send you the formula for use that we have found most satisfactory.

I have written to Dr. Schlechter to inform him that the Kew set of your orchids is here. You understand of course that this set will not be worked up here, but will be most useful in guiding me in case new species come in from other sources. I have simply written on the names that I have received from you, and when the species that are new are published by Schlechter the set will be returned to Kew. As you receive determinations from Schlechter and forward the lists to me I will place the names on the Kew set and when everything is identified and the novelties published I will return the Kew set. This will make available for English orchidologists about 170 specimens of your collection and they will, as I understand it, be equivalent to types.

Please keep material coming to me as rapidly as your busy life allows. In return I will send you from here things that will help you and all of my publications.

As I work through your specimens I will send you notes that may be of interest.

Yours sincerely,

Arthur C. Smith

BALBOA, C. Z., PANAMA January 13, 1922 192

My dear Dr Ames:

I received last evening your welcome and esteemed letter of Jan 1st, and I thank you for the cordial good wishes for the coming and future years. These are most sincerely reciprocated, together with the farther one that as the days go by we will become better acquainted.

This morning I forwarded to you by registered ^{post} ~~letter~~ the following specimens:

No 4	Oncidium panamensis	Schtr	N.S.
8	Camaridium latifolia	Schtr	N.S.
10	Eulophia longifolia (H.B. & K)	Schtr	
11	Chondrorrhyncha Lipscombii	Rolfe	
35	Epidendrum nocturnum, v panamense	Schtr	N.V.
38	Epidendrum eburneum	Reich.f.	
58	Oncidium Powellii	Schtr	N.S.
64	Lelia rubescens	Lindl	
73	Trichopilia suavis	Lindl	
97	Elleanthus Brenesii	Schtr	
98	Isochilus chiriquense	Schtr	N.S.
118	Maxillaria crassifolia	Reich.f.	
127	Maxillaria alba, v	Lindl	
134	Scaphyglottis mesocopis	Reich.f.	
167	Xylobium elongatum	Hemsl	
174	Ornithocephalus bicornis	Reich.f.	
216	Epidendrum nocturnum	Lindl	

all of which I hope will reach you in good condition and be up to your expectations.

These were all mounted before I received your letter telling me not to mount the specimens, because of the trouble, and the extra postage cost because of the papers weight. Unless there is some botanical or herbarium reason, or that I am not doing the mounting correctly, I prefer to continue mounting them for the following:

1. The specimens will all reach you in a much better condition than if they were sent in envelopes, because the handling and shaking up in the mails would detach the leaves, the inflorescence, and generally muss them up.

2 It would be practically impossible to restore these to their original positions. Where detached, I am now holding in position by means of tape before removing from drying frames.

BALBOA, C. Z., PANAMA _____ 192

3. I desire to do this work in order to give it a personal, intimate touch, so that in the years to come, when you may refer to the Panama herbarium you will remember that it was my personal work. I wish it however to be in harmony with your others, and if I am not doing it as it should be, do not hesitate to so tell me. I will not feel hurt as I know that I am not expert, ^{and} ~~but~~ am willing to learn.

This reminds me to say that I fear my last lot of sheets were a little too wide, if so kindly trim down. I have a fear that I made a mistake in the tape measurement. The first two lots were on hand cut paper, because I could not get any other; ~~but~~ I have now received my order of 200 sheets of paper and covers, all machine cut, so no more errors can be made. If I made an error in the size, excuse it.

I did not get off to Chiriqui as expected because the "S/S David", upon which I was to sail, met a mishap and was sent to dry dock and the company put in an old tub upon which I would not travel. The David is promised the last of the month when I may go. Not certain.

I thank you very much for the drawing of the Gongora. It has answered my wishes.

I have a copy of Darwins book "Fertilization of Orchids" 2nd Ed., and have read it through carefully one time, and frequently sketch over it. Perhaps you would like to know what books I have, not the ^{reprint} pamphlets. If so, I will make you a list and send you. This reminds me to incidentally say that the book written by the former Director of the Ceylon Gardens has not arrived. Nor has the pamphlet ^{with} ~~of~~ the 7 new Panama Orchids described by you. Your copy of Darwins book is simply priceless.

I had a letter from Dr Standley telling me that he was off for

BALBOA, C. Z., PANAMA _____ 192

Guatemala on Dec 6th and from there he would go to San Salvador. I have a couple of Salvador plants - one a Cattleya Skinnerii and one a Lycaste. They were brought to me by one of the ship Captains.

I sincerely hope that Dr Schlechter will accomplish for you all that you wish while in Vienna; this, with my specimens, will make your references to Panama Orchids pretty nearly complete.

I will be delighted to have the labels you so kindly offer to print for me. The City of Panama, while it sounds big when speaking of it, is only a village in our American sense; because the white or purchasing class only number about 10,000 the rest being ignorant natives and Jamaican negroes, who only purchase something to eat or to wear. So, the merchants carry very limited stocks in various articles and the printery is the Newspaper, where the stocks are small in variety and the prices are exorbitant. Anything out of the ordinary has to be ordered from the States. It was for these reasons that I requested you to purchase for me the mailing tubes.

Nothing from Dr Schlechter as yet, so I cannot send you another letter list. My latest/was Nov 12th., and my latest list was Sep 12th. I regret to know that he has been ill. There is a mail in tomorrow on which I hope for a list.

With all of the good wishes of the season,
Very sincerely

C. W. Powell

Jan 22. 1922.

List received from Dr Schlechter on Jan 21. 22

No.

215 Pleurothallis, trachychlamys. Sente n.s.

129 Leiochilus, Powellii Sente n.s.

63-70-176. Gongora, tincolor <2 var> Reich f.

32-69-93-71. " aromatica <3 var> Reich f.

76. " Powellii Sente n.s.

The variations are color variations.

193-194-195-196-197 } Mormodes, trilobulatum Sente

200-201-202-203-204 } <9 var>

191-192-198-88- Mormodes, igneum Ldl

<3 var>

The varieties are color variations.

C. Powell

I would like to have a complete
 representation eventually to represent
 the Panama orchid flora by
 your collection specimens of Schell.

A partial check list of the — Panama Orchids —

growing in the garden of C. W. Powell,
 Balboa, Canal zone, Panama.

Identifications made or confirmed by; and,
 determinations of new species made by;
 Dr Rudolf Schlechter, Berlin.

N.S. = new species: N.N. = new names: N.V. = new Varieties.

Numbers

^{asia} Aspera;

- ✓ 171 Epidendroides, Lindl
- ✓ 39 Rousseauae, Schtr

Bletia;

- 45 purpurea, DC } would be welcome
- 128 " Var DC }

Brassia;

- ✓ 143 Gircaudiana, Reich.f.
- ✓ 87 longissima, Schtr
- ✓ 72 " , Var minor Schtr N.V.

Brassavola;

- 25 nodosa, Lindl would be welcome. (just a flower)
- 102 lineata, Hook " "

Camaridium;

✓ 7

affine,

Schta. n.s.

✓ 8

latifolium,

Schta n.s.

Campylocentrum;

✓ 184

peniculis

Schta n.s.

Catasetum;

✓ 168

bicolor

KL

✓ 108

maculatum

Hook. - green, brown spot helmet

✓ 110

"

" - red helmet

✓ 13

"

" - green + yellow helmet

✓ 12

"

" - Orange, brown spotted

Cattleya;

✓! 16

Deckeri

KL

Chondrorhyncha;

✓! 47

hipscombii

Rolfe

Cleistos;

✓! 113

rosea

Lindl

Cynoches;

165	<i>Chlorochilon</i>	KL	Wanda b. welcome
✓ 111	<i>Dianae</i>	Reich. f.	
✓ 14	<i>guttulatum</i>	Sehts	U.S. many brown marks
✓ 159	<i>pachydactylon</i>	Sehts	n.s. " white
✓ 173	<i>stenodactylon</i>	Sehts	n.s. " olive
✓ 186	<i>Powellii</i>	Sehts	U.S. " rose pink

Diacrium;

✓ 67	<i>bilamelatum</i>	Hemsl	
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Dichea;

✓ 175	<i>panamensis</i>	Lindl	
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Eneyelia; (syn. *Epidendrum*)

✓ 84	<i>aspera</i>	(Lindl) Sehts	n.n.
148	<i>atropurpureum</i> (Willd.)	Sehts	n.n. welcome
✓ 80	" <i>v. rhodoglossa</i>	Sehts	n. Var. ^{lvs. purple} + rose
✓ 149	" <i>v. leucoglossa</i>	Sehts	n. Var. ^{lvs. pure} white
✓ 74	<i>campylostachys</i> (Ruechf.)	Sehts	n.n.
✓ 83	<i>profusa</i> (Aepp.)	Sehts	n.n.

Elleanthus;

97 *Brenesii* Sehtz welcome.

Epidendrum;

40 *Anseps* Jacq welcome
 41 " var Jacq
 ✓ 18 *brevicaule* Sehtz n. s.
 ✓ 17 *dendrobifolium* Sehtz n. s.
 100 *Ciliare* Lindl welcome
 ✓ 82 *Chlorocorymbis* Sehtz n. s.
 ✓ 119 *Coriifolium* var *purpureum* Sehtz n. var
 ✓ 132 *Eburneum* Reich. f.
 ✓ 206 *Epi tans* Lindl
 30 *fragrans* Schw. welcome
 43 " var " "brown marked
 ✓ 116 *galinense* Sehtz n. s.
 ✓ 29 *Hunterianum* Sehtz n. s.
 ✓ 104 *Iethmi* Sehtz n. s.
 ✓ 138 *lorifolium* Sehtz n. s.
 ✓ 188 *myodes* Reich. f.
 ✓ 35 *Nocturnum* var *panamensis* Sehtz n. var
 ✓ 187 *pachycarpum* Sehtz

Epideudrum - cont'd.

✓ 183	<i>porphyrophyllum</i>	Schtr. n.s.
99	<i>prismatocarpum</i>	Reich. f. welcome
✓ 61	<i>radicans</i> var. <i>chiriquense</i>	Schtr. n. var
✓ 89	<i>Radlkofarianum</i>	Schtr.
✓ 112	<i>Rousseauae</i>	Schtr.
33	<i>Stamfordianum</i>	Batem welcome
✓ 86	<i>subpatens</i>	Schtr. n.s.

Eulophia;

10	<i>longifolia</i> (HB + K)	Schtr. welcome
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Govenia;

✓ 205	<i>Powellii</i>	Schtr. n.s.
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Hexiceia;

✓ 68	<i>bidentata</i>	Lindl.
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Lonopsis;

181	<i>utricularioides</i>	Lindl. welcome
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Isochilus;

✓ 98 *chiriquense*, Sehtz n.s.

Laelia;

✓ 64 *rubescens*, Ldl

Loxkhardtia;

✓ 75 *mirabilis* Reich f.

✓ 52 *palida* Reich f.

Maxillaria;

✓ 127 *alba*, var Linde

✓ 125 *chiriquense* Sehtz n.s.

118 *crassifolia* Reich f. welcome

✓ 128 *Powellii* Sehtz n.s.

✓ 124 *panamensis* Sehtz n.s.

✓ 115 ~~124~~ *Rousseanae* Sehtz

✓ 120 *stenostele* Sehtz

Mormodes;

✓ 199 *atropurpureum* Lindl

✓ 24 *Hookeri* Lemaire

✓ 59 *Powellii* Sehtz n.s.

Notylia;

- ✓ 85 *graciliscarpa*
✓ 81 *pentachne*

Schtr n.s.
Reich f.

Odontoglossum;

- ✓ 142 *cariniferum*
✓ 178 *Powellii*

Reich f.
Schtr n.s.

Oncidium;

- 53 *ampliatum*
✓ 145 *ansiferum*
✓ 48 *bryolophotum*
1 *carthagenense*
55 *cebolleta*
✓ 177 *cerebriferum*
✓ 54 *cheirophorum*
✓ 161 *confusum*
✓ 49 *Klotzschianum*
✓ 160 *oematochilum*
✓ 4 *panamensis*
✓ 58 *Powellii*
26 *pusillum*

Leidl welcome
Reich f.
Reich f.
Schtr welcome
Jacq welcome
Reich f.
Reich f.
Reich f.
Reich f.
Reich f.
Schtr n.s.
Schtr n.s.
Reich f. welcome

Ornithocephalus;

✓ 174

bicornutis

Lindl

Pleurothallis;

all {

92

barboselloides

Schtr n.s

172

diuturna

Schtr n.s

190

Hunterii

Schtr n.s

106

panamensis

Schtr

146

Powellii

Schtr n.s

182

rhodoglossa

Schtr n.s

91

verecunda

Schtr n.s.

Polystachya;

✓ 122

panamensis

Schtr n.s

Restrepia;

✓ 123

Powellii

Schtr n.s

Rodriguezia;

✓ 79

Secunda var *panamensis* Schtr n. var

Sarcoglottis;

✓ 147

Hunterii

Sehtz n.s.

✓ 179

Powellii

Sehtz n.s.

Scaphyglottis;

✓ 105

longicauda

Sehtz

✓ 134

mesocypis

Reich.f.

Schomburgkia;

✓ 170

Lueddemanii

Reich f.

Sobralia;

✓ 114

fragrans

Lindl

✓ 158

macrophylla

Reich.f.

✓ 21

panamensis

Sehtz n.s.

✓ 2

Powellii

Sehtz n.s.

✓ 3

Xantholeuca

Reich.f.

Stellis;

✓ 180

Colina

Sehtz n.s.

coccinea - Lindl	✓ 65-66	<i>Trichopilia;</i>	
	✓ 9	<i>marginata</i>	Hemsl
	✓ 73	<i>Powellii</i>	Schtr N.S
	✓ 135	<i>Suavis</i>	Lindl
		" <i>alba</i>	"

✓ 44	<i>Trigonidium;</i>	
	<i>Semanii</i>	Lindl

✓ 137	<i>Vanilla;</i>	
	<i>pompona</i>	Schied

✓ 77	<i>Warszewiczella;</i>	
	<i>discolor</i>	Reich f.

✓ 167	<i>Xylobium;</i>	
✓ 27	<i>Elongatum</i>	Hemsl
✓ 117	<i>Powellii</i>	Schtr N.S
	<i>Stachyobium</i>	Hemsl

BALBOA, C. Z., PANAMA January 22, 1922, 192

My dear Dr Ames:

I received several days ago your esteemed letter of Jan 6th and I was delighted to know that you had the specimens which I had sent to Mr Rolfe, because this precludes the possibility of synonyms and the resultant confusion. Any technical differences you can adjust with Dr Schlechter and advise me of your joint conclusions for correcting my records here.

The herbarium which I am ⁿco~~o~~structing for you is absolutely type, and I would request that you will verify the Kew specimens with it before returning. Your herbarium will be more perfect than even Dr Schlechters, as he only gets plant specimens of new species and of such old as he makes a special request for.

I expect that you laughed at some of my efforts ^{at} ~~as~~ descriptions in Mr Rolfe's, but you must remember that at the time I was a novice and Mr Rolfe wrote me to do the best I could and he would straighten out. As he only asked me for flowers, you will find but few plant specimens and these were sent of my own volition where I thought I saw some reason therefor. I will take my list of those sent Mr Rolfe and make some few comments: No 5 I have cancelled, being now quite sure that I was misinformed as to location from which it came. It is a Costa Rican plant. No 23 I called an Epidendrum, I now know it to be a Dichea. I have no flower specimen and the plant has died, but I remember it perfectly. I hope to find another plant, knowing where it was found. No 36 I have cancelled, as I now am quite sure that it is the same as No 35. No 46 is a Mormodes Hookerii, the same as No 24. ~~I~~ have cancelled the number. No 50 is cancelled, it being an Ecuadorian plant. Nos 55.56.57 ^{Orchid abollata} have been cancelled, as my man in re-blocking mixed the labels, and I will make new

BALBOA, C. Z., PANAMA _____ 192

specimens under new numbers in February when the plants flower again,
or hold + give proper names when compared with new specimens.
 No 78 Masdevallia, my plant died and I have only one flower, held as a
 type. Have hopes of finding it again. No 85 Epid fragrans, var. My plant
 died and I have no specimen of this number. No 94 is cancelled, it being
 an Ecuadorian plant. No 121 is cancelled, my plant died and I have no
 flower from the plant to type by. No 157 my plant died and I have two
 flowers to type by. Hope to find others while in Chiriqui. No 162 Haben-
 aria is mixed flowers, the larger flowers ^{I believe} are the type, This you can
 adjust when you receive official type of plant and flowers. Throw away
 the ^{other} ~~smaller~~ flowers. I think this is all, will advise if discover others.

The reason that I am short of flowers of the foregoing mentioned,
 is that I sent Mr Rolfe all that I had, expecting to make my specimen
 when plants flowered again- but unfortunately they died first.

If the old Indian brings me a Selenipedium chica and only one,
 this will go to you. I wish your herbarium to be perfect, *hoping to get*
others for myself

I hope before I sail for Chiriqui I can send you another lot of
 specimens: I have some ready now, but not a full package.

I am sending you herewith copy of a list ^{from} Dr Schlechter, received
 on Jan 21st. From his letter I am sure that a list has gone astray, as
 he refers to some determinations of numbers, which I have not received. I
 am writing him today regarding it. It may be that he forgot to mail
 it and it is among his papers.

Very sincerely yours

C.W. Powell

*I neglected to say that all of the Rolfe specimens have been
 poisoned by methyl alcohol + Cor Sublimata as directed by Mr R.*

355 Commonwealth Avenue, Boston, Mass.

January 24th, 1922.

My dear Dr. Powell:

Your letter of the thirteenth January arrived this morning. It is surely good news to know that additional specimens of your valued collection are on the way. When they reach me I will acknowledge them promptly.

This morning I sent off to you a box of mounting paper, some felt driers, news-paper folders in which to lay out specimens between the driers, and some corrugated boards to place among drying specimens. These boards act as ventilators and we find that specimens dry much better when they are used. The news-paper folders we find simplify the transference of drying specimens. We arrange the specimens in the folders and do not touch them again until the material is dry. This method protects the specimens as they do not have to be handled each time a shift is made from wet to dry driers. In another package I mailed to you this morning a tube of the surgeon's plaster that we use in attaching specimens to the sheets. In the same package I enclosed some pockets of different sizes. In mounting specimens it is best to run the strips across the leaves. If simply anchored by the margins they are very apt to come up or get damaged. With your permission I will replace the plaster you used with the material that is now standard here. Furthermore, I will keep you supplied with any amount you want.

I am keeping your collection together as a special set. Later I will have a special case made to hold it. I know that this plan will meet with your approval and some day I hope it will be possible to show you the results.

I am sending you a couple of mailing tubes that

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I had in the house. A dozen or more will be forwarded to you in the course of a day. About 6cc. formaline to 100 cc. ^{70% or 50%} alcohol makes the best solution for our purposes. Or you can send the material in the weak formaline solution and we will add the necessary alcohol here. If small flowers are put in little gauze bags and tagged several kinds can be safely placed in a bottle. We also find that if the liquid, if alcohol is used in the mixture, is poured mostly off the specimens keep perfectly well for many days. Any of the more common species will be welcome. Dr. Standley wants the species figured that one is most likely to meet in an ordinary trip through the country. New species, of course, must receive attention also.

Another copy of the paper on Panaman orchids has been forwarded to you. The book by Dr. Willis has been ordered. This, if it is in stock, should reach you shortly after this letter.

My work on the Central American orchids is now in full swing so that anything you send will be most welcome and very useful!

I have not heard from Dr. Schlechter for several weeks. I am afraid he is very human. By this time he ought to be on his way to Vienna, if he is not already there, and in that event we may not receive messages from him for some time.

If you get good material of Selenipedium chiea why not write it up for the Orchid Review. I know that Mr. Wilson, the new editor, is very anxious to get interesting material and he will welcome first hand information regarding the orchids of Panama.

With the best of good wishes,

Yours faithfully,

Oakes Ames.

BALBOA, C. Z., PANAMA January 31, 1922 192

My dear Dr Ames:

I am off for Chiriqui Province tomorrow, where I hope to procure many specimens. I will return about the 20th Feb.

I am enclosing you ~~here~~ by registered post today the following specimens_

No	44	Trigonidium semanii	Lindl	
	53	Oncidium ampliatum	Lindl	
	65	Trichopilia coccinea	Lindl	
	129	Leiochilus Powellii	Schtr	N.S.
	175	Dichea panamensis	Lindl	

These were all that I had ready to send you, and I thought I would let them come on and not wait my return. I have others in process but the plants were not dry.

Very sincerely yours

C. W. Powell

355 Commonwealth Avenue, Boston, Mass., February 2, 1922.

My dear Dr. Powell:

The third package of Panaman orchids arrived in the best possible condition and have been added to the rest of the collection. I have also received a specimen of *Angraecum* from you with a post-card picture of the African jungle. Before I realized that you might wish to have the post-card returned I mounted it with the specimen and your letter on an herbarium sheet, after carefully removing the African stamp for my little daughter's collection of postage stamps. You will see by this that all is fish that comes to this net.

The orchids are a delight to me and I find that I am beginning to take a special interest in the herbarium of your Panama collection. This interest stimulated by glowing prospects gives me deep pleasure. I am a collector in spirit, and too see concentrated effort take shape affords me more joy than almost anything else in life. I suppose that is why I have devoted thirty years to the building up of an orchid herbarium! With your help I hope to assemble a critically studied assemblage of Panama orchids that will be something for anybody to bear in mind who has intentions of doing work on Central American orchids.

The additions to the list arrived this morning. I made the entries on the Kew set. As I did so I made a note that it would be very much worth while to have a complete set of your *Gongora* species and varieties on hand. I have one or two specimens from Mrs. Rousseau's collection that please me very much. This is a difficult genus and one in which field work and garden work will help to setus right. Your opinion based on close contacts with living plants ought to help us to know just how dependable some of the regognized species are.

Feb. 2. '22.

g

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Very often dried material is wholly inadequate when we attempt to differentiate between species that the field botanist comes to recognize with ease. But, in my opinion, we should not allow color to swamp the deeper significance of structure. Similar structure is more dependable, it seems to me, ^{than} different color patterns, and the variety and subspecies should be given more attention than some of us think they deserve. By this I mean that the multiplication of species should be attempted only after long and conscientious study of the stability of characters. Pending admission to specific rank the variety is a good starting point for some of those polymorphic plants that need to be studied intensively before they are in a way to be understood.

Formalin material of Gongora would be very acceptable for drawing as well as for study.

Just as soon as ^I can estimate the amount of space your collection will take up I will send you drawings of a steel case I intend to have made.

Labels will be sent to you shortly.

If there is anything else that you need, please keep me informed.

Yours with all good wishes,

Robert C. Moore

355 Commonwealth Avenue, Boston, Mass., Feb. 3, 1922.

My dear Dr. Powell:

The genus covers for your specimens were stamped today and look very well. On the lower left hand corner appears the generic name and genus number; on the right hand corner appears the following: Herb. Powell
Panama.

There are twenty-two genera to date. Now it will be of great interest to see the covers fill up. This reminds me that you use a separate cover for each species. I allow about ten sheets to a genus cover. Another thing to guard against is mounting your specimens so that the bulky parts always come in the same place. At present you need to get more bulk near the top and on the right hand side of the sheets. Of course this is not always easy to do, but bear the matter in mind.

I am afraid Pleurothallis panamensis is too close to P. pergracilis Rolfe. It is also very near P. choconiana Wats. I worked up these species pretty carefully at Kew and have Rolfe's ^a camer^a-lucida sketches that he made when I was with him in 1905. P. marginata Lindl. is also close, differing chiefly from the others in having the lateral sepals almost free.

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass. Feb. 8, 1922.

My dear Dr. Powell:

You asked me to send to you any observations I made as I worked through your specimens. To-day I have been busy with *Polystachya* as represented in Central America and the West Indies. Your 122 referred to *P. panamensis* Schltr. ined., is painfully close to *P. minor* Fawc. & Rendle. a Jamaican species which also reaches British Guiana, according to its authors, and is a native of Mexico and Panama according to my observations. I do not see on what characters Dr. S. separates his species based on your 122 from *P. minor*. Furthermore he has recently published a new species under the name *P. guatemalensis* comparing it with *P. minor*. If you do not happen to have material of *P. minor*, I will send you a few flowers and the original description of the species.

You may be sure that I am counting the days in anticipation of another package of your valued material.

Yours faithfully,

P.S. Perhaps you could obtain *P. minor* from Hope Gardens Jamaica in exchange for something and by growing the species in your garden compare the Panamanian plant with it.

27. Febr. 1922.

My dear Mr. Powell! Don't you be cross,
that I have been quiet for such a long time.
I was for a month in Vienna to work in the
herbarium of Reichenbach. Before I was suffer-
ing for several weeks of influenza. In Vienna
I had the misfortune to get my feet frozen,
happily enough after I had nearly finished
my work. I returned with a large harvest
of information about doubtful orchids.
I hope to be able to send you the rest of
all determinations within a short time.

Dr. F. Schlechter
Absender:

Berlin-Schönberg

Hann. Gr. 11. 12.

Postkarte



Have you received the
Orchid-flora of the
Cordillera-states? I will

now start with drawing
out the descriptions of
your novelties.

Soon you will hear
more of me
Yours very sincerely
R. Schlechter.

Mr. C. W. Jewell

The Bollman Dispensary

Bolton (General Store)

Foruman
Central American

March 4, 1922

C. W. Powell

I enclose also a specimen of Spagnum moss, a large bed of which I found while on one of my hunts. I was under the impression that it only grew in very cold countries, say in extreme N.W. of the U.S. and like localities. Has it been heretofore known in the tropics ?.

THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

Balboa, C. Z. March 15, 1922.

My dear Dr Ames:

Phew, I will now resume the normal !. All of the plants brought with me have been staged up and started, I hope, on their well being. Big job !.

Taking up your letters of Jan 24, Feb 2,3,8, (all of which arrived during my absence) I will run over them again and make my comments.

As I wrote you on March 4th, all of the articles mentioned in your letter of Jan 24th, arrived safely and were welcome helps; in some cases enabling me to do away with substitutes which I have been using. The surgical plaster was an especially welcome article; as I wrote you in my first letter, the kind I was using was bulky, but it was the best I could do. I went to every Drug-store in Panama to purchase some of the standard kind used, but no one kept it.

I am delighted to know that you are keeping my specimens separate and that you will make a special herbarium of them. This pleases me exceedingly, and will serve as a stimulus to put more effort in making it perfect, if such were needed.

I note that you have begun work on their examination and your desire for rapid arrivals of more materials. As it has been my desire to and endeavor to to send each plant with an inflorescence attached, we will of necessity have to await the flowering. I have many specimens of loose flowers, dried and cured with the Methyl and corrosive sub mixture (Kew formula), and I can expedite sendings by pressing and drying a plant, without the inflorescence, using these flowers. Do you wish them that way, or do you prefer to await the flowering and get fresh specimens ?. (A sample was the *Oncidium ampliatum* in last sending). Then again there will be some of which I cannot at this time send you plant specimens, owing to limited plants in the garden. I will go through my sheets and send on the flowers of this latter, making a memo on my card index to send plant specimen when available. Shall I do this ?.

THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

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page 2

As I have probably previously written you, my old herbarium consisted only of flower specimens, no plants being preserved upon the idea that as I had them growing it was not necessary. Besides, as you know, the making of a plant specimen means the sacrificing of a plant from the garden to make it, and I did not have the plants to spare for that purpose.

I will send you shortly in bottles specimens of the Gongoras. They are quite prolific bloomers and flower two to three times a year. Some are now in flower spike.

The old Indian has not shown up since my return, but this is not surprising as I told him in December that I was going away and would not return until early in March. This reminds me to tell you that I found the much sought for *Selenipedium longifolium* on my trip and brought home with me some dozen plants. They did not travel too well but I feel confident of saving a large part of them.

I will try and arrange the specimens on sheets so that they will not bulk too much at any particular spot. This will be hard to do with Tropical American plants as the majority have large fat pseudobulbs with long leaves, and my efforts have been to get the entire plant on the sheet without cutting it. I will bear the matter in mind.

The *Pleurothallis panamensis* is not an original name given to my specimen, it had been heretofore determined and was published by Dr Schlechter in Fedde Rep't XVII - 1921, pp 138-144 of Orch Nov et Crit under No 685. The plant was discovered by Dr Wagner in 1858. This plant will now have to lose its rank as being the smallest of *Pleurothallis* because I procured two different species/on my trip which are much smaller.

Your note on *Polystachya panamensis* has been filed with my specimen. I have not a plant of *P. minor* but will endeavor to procure it in the near future. I would suggest, that in all cases of differences in opinion or in material that you take it up with Dr Schlechter and adjust. This you know better about than I do.

THE PANAMA CANAL

CANAL ZONE

HEALTH DEPARTMENT

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page 3

I make this last suggestion because at this time no one else, ~~xxxx~~ except Dr S, you and I, have but very few Panama specimens, and it is quite easy now to correct any errors.

Referring to the Angraecum specimen sent you, I find that I spelled the name wrongly (I was at my office when I wrote the letter and gave the name from memory). It should be A. Kotschyi. If you will refer to page 251 of The Orchid World, Vol III, for 1913, you will find a long illustrated article on this plant written by its discoverer, as well as on others from Uganda. Perhaps you are familiar with the article.

I am looking forward to a renewal of your letters, they always interest me and tell me something that I wish to know.

No doubt you received the package of 5 specimens sent you the day before my leaving for Chiriqui.

With assurances of esteem and good wishes,

Sincerely yours

C. W. Powell

P.S. In order to keep the record straight- You have been addressing me as Dr. It should be Mr. I am not a physician, but am and have been the Clerk at this Dispensary for 13 years. A great many people here call me Dr as a courtesy title because of my long service with the Canal Zone Health Department, in its Dispensaries. I have been intending calling your attention to this, but have overlooked it when writing.

BALBOA, C. Z., PANAMA March 22, 1922 192

My dear Dr Ames:

I am sending you tomorrow the following specimens
by registered mail-

No	2	<i>Sobralia, Powellii</i>	Schtr	N.S.
	7	<i>Camaridium, affine</i>	Schtr	N.S.
	14	<i>Cycnoches, guttulatum</i>	Schtr	N.S.
	47	<i>Chondrorrhyncha, Lipscombii</i>	Rolfe	
	48	<i>Oncidium, bryologhotum</i>	Reich.f.	
	52	<i>Lockhartia, palida</i>	Reich.f.	
MORMODES	59	<i>Cycnoches</i> , <i>Powellii</i>	Schtr	N.S.
	61	<i>Epidendrum, radicans- v panamensis</i>	Schtr	N.V.
	68	<i>Hexisia, bidentata</i>	Lindl	
	74	<i>Encyclia, campylostelix</i>	Schtr	N.N.
	119	<i>Epidendrum, corifolium-v purpurescens</i>	Schtr	N.V.
MAXILLARIA	125	<i>Epidendrum</i> , <i>chiriquense</i>	Schtr	N.S.
137	127	<i>Vanilla, pompona</i>	Schiede	
	138	<i>Epidendrum, lorifolium</i>	Schtr	N.S.
	142	<i>Odontoglossum, carineferum</i>	Reich.f.	
	149	<i>Encyclia, atropurpureum-v leucoglossa</i>	Schtr	N.S.
	168	<i>Catasetum, bicolor</i>	Kl	
	170	<i>Schomburgkia, Lueddemanii</i>	Reich.f.	
	171	<i>Aspasia, epidendroides</i>	Lindl	
	187	<i>Epidendrum, pachycarpum</i>	Schtr	

all of which I hope will arrive in good condition. Criticism and suggestions invited.

You can always correct any specimen I may send, in any way that will make its appearance or utility more effective.

I wish you to send me a couple of rolls of adhesive tape, all I had has been used up. You know that I am making for myself a duplicate set of specimens to those sent you, excepting when I have only materials for one, then that goes to you. Making the two sets uses up tape rapidly.

I have now mounted ready to send you, ~~about~~ 12 sheets, but I am waiting for Dr Schlechter's list - the one which appears to have ~~be~~ been lost in transit. I need the names to complete.

I have three specimens of *Gongoras* in bottles for you, but am holding a while, hoping to send the entire series at once.

caudatum

A *Selenipedium*/is showing flower spike. A little early though.

With all good wishes, sincerely yours

C.W. Powell

355 Commonwealth Avenue, Boston, Mass. March 24th, 1922.

My dear Mr. Powell:

My long silence is explained, of course, by my knowledge of the fact that you were absent from home. I am delighted to know that you are again among your orchids and that I may expect to hear from you as frequently as you are disposed to write to me.

The five specimens of orchids reached me in good condition and have been added to your other specimens. It is needless to inform you that all material is welcome and awaited with intense interest.

I am glad that the little book by Willis is just what you wanted. I have found it one of the best botanical desk-books that has been published, and I know that you will enjoy possessing it.

I read the copy of Schlechter's letter with deep interest. What he says about your contribution to orchidology is ~~very~~. I would add to the list of notable achievements, however, the collection made by Chaplain Clemens on Mt Kinabalu. You have a record of this in the sixth volume of my Orchidaceae.

Schlechter has recently returned from Vienna. While there, he made for me about two hundred drawings from Reichenbachian types. During the work he froze his feet. He must have worked under very trying conditions!

Use your own judgement about the preparation of specimens. I realize the difficulties in your way, and the impossibility of supplying parts of the vegetative system of the species when the plants are too small to warrant division.

I have booked passage for England on June 28th. I want to consult some types at Kew and I also want to have a go at the Reichenbach herbarium. In this regard you will be interested to learn

that the authorities at Vienna are putting aside for me , as far as is possible, duplicates of Reichenbach's types. So you see, we will have right here a very helpful nucleus of the critical species that have been difficult to understand because of Reichenbach's atrocious descriptions and slovenly work. With the tracings made by Schlechter, the photographs and drawings I intend to make at Vienna this summer, and with the specimens sent to me in exchange, we ought to be able to get on pretty well.

Vol. 7 of Orchidaceae comes out on April 5th. A copy will be forwarded to you at once.

Keep me informed of your needs. It is so simple to get materials for you.'

A column with anther etc. of *Cattleya Deckeri* in formalin solution will be very helpful. I have used one of your specimens to illustrate this species, but the column needs to be drawn from material that is as near natural condition as possible. A lip too, would help.

Dont forget to study colony formation of orchids in the light of mycorrhiza.

Would you be interested in Knudson's recent publication on the germination of orchids by means of nutrient solutions. Perhaps you would be pleased to try your hand at raising orchids from seeds in your garden.

Yours faithfully,

Robert C. Linsley

BALBOA, C. Z., PANAMA March 26, 1922 192

My dear Dr Ames:

I am sending you herewith 4 specimens of Mosses. Will you kindly determine them for me. If you should wish for any reason to retain the specimens you can do so, but place a small piece of each in one of your specimen envelopes and write the name on the outside.

I am also sending you an empty seed capsule of a *Selenipedium caudatum*, v *Warscewiczii* (see No 153 of my Kew lot) I thought you might like to have it, because Veitch's Manual, part IV, page 3 says at bottom of page- " that among the thousands of plants (*Cypripediums*) imported by us in the past 30 years, we have rarely noticed a single seed capsule". I found this capsule on one of the plants procured by me on my recent trip to Chiriqui.

I am much encouraged over my *Selenipedium longifolium* plants. None have died as yet, though they are still sick, but appear in better condition.

I have the prettiest little *Oncidium* flowering today. It has a long swan neck column, very slender and curved, like a *Cynoches*. ^(the column) It stands out boldly, overhanging the labellum, giving it a peculiar appearance. ^(n° 230) Specimen has already been sent to Dr Schlechter, procured while in Chiriqui. I also procured some plants of my No 157 in Kew specimens, which I wrote you that my one plant died and that I only had 2 flowers to preserve as a type. This has flowered since my return and will be sent on to Dr S with my next sending. I also procured 2 ^{new species of} other *Oncidiums*, dont know what they are, never having seen them before. Will not flower this season, I am quite sure, being ~~inx~~ with young growth.

most sincerely yours

C. Powell

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The series of *Bongoras* will be completed in a few days, as the others not yet bottled, are in flower spike. They will be then forwarded to you.

355 Commonwealth Avenue, Boston, Mass.

March 30th, 1922.

My dear Mr. Powell:

In my last letter I forgot to answer your question about the specimen of *Sphagnum* collected in Chiriqui. There are several species characterized by tropical distribution. *Sphagnum platycladium* is reported from Mexico, Guatemala and Costa Rica. Perhaps your specimens belong to this species. If you are anxious to have a definitive determination let me know and I will submit your material to an authority on mosses. The genus is too difficult for the ordinary mortal, and even for the experts the plants must be just right before a sure diagnosis ~~is~~ can be made with reasonable confidence as to its correctness. I have no records of *Sphagnum* from Panama, but *S. platycladium* gets farther south than that, although it is also a native of Mexico.

Yours sincerely,

Oakes Ames

~~XXXX~~ April 1st, 1922.

355 Commonwealth Avenue, Boston, Mass.

My dear Mr. Powell:

Your letter of March 22 is just here. The specimens will come along by Monday and I will send you word of them at the earliest possible time. I am sending this letter off to you for the purpose of enclosing a few strips of surgeon's plaster. On Monday I will send you another tube so that you will be well supplied.

You do not realize how much the material you are sending to me means.

Now that I have your permission to change the strips on the specimens already in hand and to make any changes that will help their appearance and utility I intend to go at them at once. It will only be necessary to remove the tape and secure the specimens to the sheet in just the position that you have placed them in.

Vol 7 of Orchidaceae will be forwarded on Thursday next.

Yours faithfully,

Arthur Oliver

April 5, 1922

BALBOA, C. Z., PANAMA _____ 192

My dear Dr Ames:

I have your esteemed letter of Mch 24, for which ~~th~~ many thanks.

I had a post card from Dr Schlechter of date Feb 27 enclosed you herewith for information. You will note he promises me determination lists at once, and that he will start now to make out the descriptions for publication.

You omitted in your letter to advise me about the Sphagnum moss in the tropics, as requested in ~~you~~ in my letter of Mch 4.

As I have heretofore written you it is my desire ^{as} and intention to make your herbarium of Panama Orchids ~~a~~ perfect as possible, and therefore there will be but few specimens without plant specimens at this time; and these will come on to you at some later date when available.

Do not fail to send the adhesive plaster as I am at a standstill awaiting it. Also the labels advised in your letter of Jan last. Not knowing exactly what these labels are, I am suggesting that if they do not embrace the card label in the lower right hand corner of specimen sheets, that you have me some printed. It will save me much labor in typewriting them out for every sheet as now. It will be ^{then} only necessary to fill in the information.

If the cover sheets which I am sending with the specimens are not needed by you, will you kindly return them by mail in the heavy card board I am sending on outside of packages. I think it best to protect each specimen with a cover in the mails, and these

BALBOA, C. Z., PANAMA _____ 192

covers are quite expensive here (seven and a half cents each), the postage to return them will be very small in comparison, hence I have no hesitation in mentioning it.

Answering your enquiry as to Knudson's recent publication. I read a few years ago with some interest, a couple of articles written by Prof Lumsden of Cornell on this subject; and I have just recently read quite an article written by Prof Ramsbottom ^{of Kew.} "Orchid Mycorrhiza". This was referred to in last number of Orch Review.

I have growing in my garden quite a number of seedlings, self sown; and it is my custom to break a ripe seed capsule ^{from} ~~on~~ a stem and to scatter the seeds to the winds, believing that they may do some one some good in the future. I also frequently break a capsule and drop it on the packing in the basket of the mother plant, of a desirable species, hoping for results. It is too early as yet to say if any. In one case I have quite a colony of seedlings of *Oncid carthaginense* on an old tree limb, self sown from some one of my plants.

As soon as Cat Deckeri flowers I will put up and send you the desired parts, as well as full flowers. This will not be until Sep't or Oct. I now have for you in bottles 6 of the *E* Congoras, with one of the 2 now in flower spike, and the other sprouting a spike. So within a very short time the entire series will come on.

It is too early yet to wish you "God speed" on your trip to Europe, but I can say that I wish I was going. It would be the joy of my life to visit a big Botanical Garden like Kew.

Sincerely yours.

C. W. Powell

I also have hanging, not yet ripe, seed capsules of a cross & reverse cross between *Oepasia Roveana* & *Oepasia Epidendroides*. These should produce a very desirable *Oepasia*.

355 Commonwealth Avenue, Boston, Mass.

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April 5th, 1922.

My dear Mr. Powell:

The specimens arrived last evening. They look very professional, and you are to be congratulated. I only have one criticism to offer. The strips are a bit wide and sometimes too long. For the stems, strips $1/8$ of an inch wide will do very well. Good results are obtained by using very narrow strips ($1/16$ in.) across pedicels and flowers. In other words, we try to make the strips as inconspicuous as possible. The plaster, by the way, is very strong.

The mosses and two orchids specimens came this morning. I will obtain the names for the mosses at the earliest possible time. I must submit them to one of our best authorities, as I am not sufficiently well drilled in moss identification to give you names that you could trust.

I have added the specimens to your set and they make a very strong addition. Please do not get weary of this good work!

I am sending to you to-day the seventh volume of Orchidaceae. I hope this will be of interest and serve to keep you informed of my good will toward you. pp. 127 to 128 should be of importance; also the article on Erythrodes, beginning on page 63.

With the best of good wishes,

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass.

April 15th, 1922.

My dear Mr. Powell:

Your letter enclosing no. 230 has just arrived. Although from a single flower and no vegetative parts it would be unwise to attempt a determination for you pending a report from Dr. Schlechter, you may be interested to know that your specimen is close to Sigmatostalix costaricensis Rolfe.

I have already reported on the Sphagnum from Chiriqui. I have already sent plaster. Genus covers will be forwarded to-morrow. The printer who had the labels in hand lost his establishment in a fire.

I will send you some labels just as soon as I can get them printed.

A thousand thanks for the stamps/ These, of course, are of great interest to my daughter and she has asked me to thank you on her account.

1/
The label I panned for you was copied from the type-written one you use now.

Vol VII of Orchidaceae will reach you before this letter does.

Yours faithfully,

Oakes Ames.

BALBOA, C. Z., PANAMA April 16, 1922

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My dear Dr Ames:

I will tomorrow send you by mail 7 bottled specimens of the Gongora tribe. No 93 seems to have disappeared- that is the plant flowering and marked No 93 is not it. I fear that my Jamaican gardner changed the numbers some way last fall when he was rebasketing the Gongoras. Will you kindly compare the Kew specimens with these and see that they are the same. The numbers ^{now} as sent you are ^{from} the same plants and numbers as sent Dr Schlechter and determined by him under these numbers- hence those of Kew must agree with them.

Dr Strong, of Harvard, was to see my Garden this afternoon. There were not many flowers in evidence, as I have been keeping them pretty closely cut for specimens, and giving to friends who come to the garden. I hope he was pleased. He did say that he wanted you to come to Panama.

During the week I will send you another lot of Specimens of those you already have the names. There will be some mighty pretty ones among them.

I am sending with this ^{a sheet with} a single pressed and dried flower ^{Each of} of the Gongoras, which I call my key sheet to the Gongora tribe. With this key and the bottled specimens you should be able to make almost perfect drawings of the types. "Regular specimens will be sent you at a later date.

On Tuesday the mail will come in from New York and I am expecting a world of pleasure in going through vol 7 of your Orchidaceae and also in the receipt of one of your letters.

Very sincerely yours

C. Powell

In bottle N° 70 I have placed a Lycaste (undetermined). It is no 140 of Kew specimens, and I think probably L. tricolor. R.L.

④ No doubt it is among my other plants and will be discovered when it flowers. Then I will send you specimen in bottle.

Return contain eye & bottle. It may be something else to go.

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

April 20th, 1922.

My dear Mr. Powell:

On my return from the country this afternoon I found the package of Gongora flowers on my desk. I was really overjoyed to get these. Another fascicle of best thanks is yours. I entered the specimens in your department of my herbarium. I took the liberty of separating them, as it would lead to difficulties if I should keep them on one sheet. When the specimens preserved in formalin arrive, Mrs. Ames will make drawings. In the meantime it would help if you find time to tell me how you distinguish the species in your Garden.

I am delighted to learn of Dr. Strong's visit to you. I find him a very inspiring man.

Vol VII of Orchidaceae was forwarded to you promptly. In fact your copy went out with the first half dozen that were sent abroad. I hope you will find in it some food for thought and at least discover something to cherish in the drawings Mrs. Ames made for us.

I am anxious to receive more material from you before I go abroad. By visualizing your specimens I hope to be able to check up Dr. Schlechter's determinations.

Yours faithfully,


THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

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IN REPLY REFER TO FILE

Balboa, Canal Zone. Panama.

April 25, 1922.

My dear Dr Ames:

By registered mail today I am sending you the following specimens:

No.	39	Aspasia, Rousseauae	Schltr
	79	Rodrigueza, secunda, v panamense	Schtr
	80	Encyclia, atropurpureum, v rhodoglossa	Schtr
	84	Encyclia, aspera	Schtr
	86	Epidendrum, sub-patens	Schtr
	87	Brassia, longissima	Schtr
	92	Pleurothallis, barbeselleides	Schtr
	102	Brassavola, lineata	Hook
	120	Maxillaria, stenostele	Schtr
	180	Stellis, celina	Schtr
	181	Ionopsis, utricularioides	Lindl
	220	Oncidium, cebilleta	Schw

All of which I trust will reach you in good condition and prove to be interesting.

I am also enclosing you a few memorandums and a couple of observations.

I do not know whether you wish "observations" on net, but I am sending these for what they are worth.

Another package will follow soon, as I am expecting now daily the list from Dr Schlechter.

Very sincerely yours

C. W. Powell

I have quite a number of Costa Rican plants. If you should need any special
Orchid specimen of this/flora, and you will write me its name I will have much pleasure
 in sending it, if I have among my plants. If I have it not, I feel quite sure
 that I can procure it for you from my friend who lives at Cartago.

I also have some from Columbia, Venezuela & Ecuador- but these are without
 the purview of your forthcoming work.

** ** ** **

Frequently friends bring to me native flowers and ask me if I can tell them
 the names. Ofcourse I can do this in but a very few instances- as I am only
 interested in Orchids. Would you care to have me send such on to you, or are
 you now only interested in the Orchid?.

** ** ** **

If in any case of specimens which I am sending you of Panama Orchids, you should
 need any additional flowers to these I am sending, please advise me and I will
 endeavor to supply the need.

** ** ** **

POST CARD



POSTAGE ONLY

Dear Oakes: Have
just been over and
Ponello coll. & herb. of
Orchidaceae & he is
a good old chap.
Reminds me to tell you
about him when next
we meet. I get to Boston
the 14th May. Yrs. B.

Oakes, Ames Esq.
Bussey Inst.
Jama. Plain
Boston
Mass.

RESIDENCIA DE UN OFICIAL DEL CANAL, ANCON



ONE OF THE HOMES OF THE CANAL OFFICIALS, ANCON.
No 524
CANAL ZONE.

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

May 9th, 1922.

My dear Mr. Powell:

The mailing tubes with *Gongora* specimens and the package of orchid specimens reached me in the best possible condition. It is superfluous to tell you that this contribution gave me unbounded pleasure and put before me material that will be of great value in my studies.

In the Flora I have merged *Trichopilea marginata* and *T. coccinea*. It is, indeed, helpful to have your support of this treatment. Please give me any suggestions that that your experience leads you to believe would be worthy of consideration. In this regard, you must bear in mind that the man in the field has a wonderful opportunity to aid the man in the herbarium.

I enclose two photographs taken from the specimens in the National Herbarium. I do not find that these are included in your list of specimens. It would be well to locate them, as the type material is very poor. *E. panamense*, for example, has but a single flower in our specimen.

The genus covers for your additional genera have been printed and the species distributed. It would seem that you have outgrown the pigeon-hole assigned to you.

Your question regarding extralimital orchids is best answered by saying that all orchids are desired. I draw no lines. Everything is acceptable! As to unorchidaceous

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

material, I am only interested in herbarium specimens of useful (economic) plants.

I have not heard from Dr. Schlechter for over a month. As replies to some of my letters to him were really ~~if~~ very necessary, I am beginning to feel troubled.

I have an interesting paper with plates on the way through the press. A copy of this will be sent to you on the day of publication.

A package of genus covers has been sent off. If you need anything else, inform me of your needs when you write again.

Yours faithfully,

Oakes Ames

THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

IN REPLY REFER TO FILE

Balboa, Canal Zone.

May 10, 1922.

My dear Mr Ames:

I have your esteemed letter of Apl 30th, acknowledging receipt of Gengera sheets; and, wherein you request information as to the technique of my method of identification of plants in my garden. It is practically as follows:-
When a plant is received from the woods it is trimmed, cleaned and basketed. A label tag is attached with nothing on it except locality from which procured. (No matter how well I may think I know a plant, I never number or name it until it flowers).
When it flowers, I compare flower with others of same species already determined, and if it is the same, I give it the number and name appropriate. If it developes to be a new one or I think so, I give it ^{the} consecutive number, make a specimen and send it on to Dr Schlechter. As soon as his determination is received, I then put on the tag, the name as given by him. This is typical of all.

Now as to the Gengeras- these plants are very similar, in fact to the casual observer they are the same; and even to me, as close an observer as I am, I cannot tell them ^{all} without consulting the tags, with certainty. As to the fear I had of my Jamaican gardner mixing ~~them~~ the labels. All of my Gengeras are in small ^{which are alike} baskets, these baskets decay every so often and have to be renewed. I employ this man to come to my place two days per week (I cannot afford to have him continuously) to clean up the garden, trim dead leaves and to rebasket such as need it. I have some 25-30 Gengera plants and last year ^{many} ~~they~~ needed this rebasket. I told him to do it. My idea was, that when he finished up No 93 he forget to transfer the label tag, hung up the basket and on returning to the work bench he found the label, and placed it upon one of the unnamed ones in error. I was

since the Kew specimens were sent on a little fearful (not much) that he might have mixed some of the others/so I asked you to verify them with the Kew specimens by number. I would advise that I now have No 93 both bottled and pressed, and it will be sent on to you as soon as I am in receipt of the bottle containers. It was as I supposed, he had placed it upon one of the new plants hanging at the side of No 93. No 71 is a gloriously beautiful thing and quite fragrant. No 32 is also very fragrant- very much the spicy odor same/as the Stanhopea. The key sheet I sent you is a copy of mine, and I use it for quick reference to the tribe, without pulling down the Herbarium sheets.

Regular specimens of plants and flowers will be sent you in due course, of all of the Gesneras.

I received Vol VLL of Orchidacea promptly and have read it over with very much pleasure. The illustrations are exquisite, reminding one of copper plate etchings. They are so much more chaste and expressive than the usual figures in Orchid books, that you almost lose sight of the subject in admiring the workmanship. The contemplation of these has several times brought up the idea, that if I had a camera lucida it would be just simply great to make drawings from the living ~~parts~~ ^{own} parts of flowers for additional matter to my herbarium. Do you not think it would?

Regarding the little flower No 230 (Sigatostalix) sent you. I did not expect that you would take any trouble in looking this up- it was only sent at this time because it appeared curious to me. I was never satisfied with my tentative diagnosis as an Oncidium and I wrote you that it had a strange look to me. Many thanks for the reference, which I have looked up and I concur with you as far as my judgement from written description is capable of. I also find that it is not an uncommon species, as it is represented in Costa Rica by 2; in Columbia by 2; in Peru by 4; in Ecuador by 2; in Guatemala by 1. But, never having seen any of the species and not suspecting it here, I jumped to the conclusion that it must be an Oncid as the plant had a decided Oncid shape. I of course knew that Dr Schlechter

would make it correct when he got it. A nice specimen will be sent you in the near future, it being now already mounted.

Is there any published set of Color charts, used by Orchidists to determine flower colors. In many cases I find it difficult to decide, and then you know - "many men of many minds" as to colors.

I hope that Dr White brought you back many specimens from the great Amazon basin. This is a great field

Within a few days I will have you another lot dried and will send on.

Very sincerely yours

C.W. Powell

I will use every effort to get you as many before you leave for Europe as I can.

93

THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

IN REPLY REFER TO FILE

Palboa, Canal Zone, Panama.

May 18, 1922.

My dear Dr Ames:

Will you kindly look at Kew specimens ~~Mr~~

No 22	I think a Maxillaria	I have only 1 flower
No 78	I think a Masdevallia	do

only after a further exam

I have plant of No 22, but it has never flowered for me since I made the Kew specimens. I have no plant of No 78, it died.

If you find that the quantity of flowers in the Kew lot justifies it, will you kindly divide and send me a part of them. I think that it may be best to send on to Dr Schlechter a specimen of these flowers and if possible have them identified or determined. I was pretty liberal with specimens to Kew, as a rule.

I feel quite sure that No 22 will do better for me from now on, as I rebasketed it a short time back and it is now growing like a bay tree. This plant was found by me floating in Gatun Lake on a dead log ^{which was} partly rotted, and water soaked. I have now put it in fresh Sphagnum moss and am keeping it soaking wet- it seems to like it.

I am sure ~~to~~ sooner or later to get another plant of No 78.

I am desirous of closing up these old Kew specimens as soon as possible, by determinations or identifications.

Very sincerely yours

C. W. Powell

I have at this moment 28 specimens mounted ready. 20 of them awaiting list from Dr S. I am becoming somewhat impatient over his delay.

Notes:-

Made as they occur to me from time to time, and usually forgotten when I write.

What is the cost of two of the metal drying frames used in botanical gardens to dry flowers and plants. They are iron frames with wire soldered on the sides, and straps that are used to take up the slack as the plants dry out. I have been using two boards, with weights, and it seems to me that the frames ~~are~~ would be much more convenient in handling and capable of doing better work.

Where and by whom is made the Camera lucida. What is its cost- if made in Europe, I would like the cost there, as I can import it here free of duty.

I am fearful that mould will attack my herbarium specimens during the rainy season, when the atmosphere is always heavily charged. The average saturation being about 87. Is there any danger, if so how can this be avoided. Mr Rolfe told me to use Methyl alcohol and corrosive sublimate on specimens, but I do not like this as it spoils all colors.

Can you put me in correspondence with some one in the Phillipines who can send me some Phalanopsis plants. I am exceedingly anxious to have some in my garden. I feel sure that they can be sent me by mail. I have many plants from India, and a complete exhibit of Australian Dendrobies- all come by mail.

I am haunted by the idea of a Camera lucida. The potentialities of it appear so great. The very small flowers, botanical parts of them and of larger ones would be so illustrative to have in the herbarium, and would be of so great value in assisting the determinations as to identical flowers from different plants. Write me your views along these lines.

I will hold up all specimens while you are in Europe, unless you advise me to continue sending on as usual. When you get home you will have a big bunch of them.

** *****

Any suggestions in the way of improving my technique in the drying and the pressing of specimens will be gladly received and appreciated. I am constantly studying and experimenting with them.

Before you sail for Europe send me more adhesive tape. Be sure to tell your assistant to put oiled paper over the gummed ~~p~~ side. I lost about one third of the last lot by its adhering together, after the manner of postage stamps you buy in lots. Only here it is so damp that every part of it sticks together and you have to wet it loose and then dry over again. The oil paper is absolutely necessary here, owing to humidity of atmosphere.

May 21, 1922

BALBOA, C. Z., PANAMA 192

My dear Dr Ames:

*tomorrow by Registered mail*I am sending you ~~herewith~~ specimens:-

No	69	Gongora, aromatica	<i>form</i>	Reich.f.	
	76	Gongora, Powellii		Schtr	N.S.
	89	Epidendrum, Radlkoferianum		Schtr	
	101	Epidendrum, prismatocarpum	<i>form</i>	Reich.f.	
	102	Brassavola, lineata	<i>form</i>	Hook	additional
	143	Brassia, Gireoudiana		Reich.f.	
	147	Sarcoglottis, Hunterianum		Schtr	N.S.
	151	Epidendrum, pachycarpum	<i>form</i>	Schtr	
	184	Campylocentrum, peniculis		Schtr	N.S.

all of which I hope will arrive in good condition and prove to be interesting.

I thought it best to let these come on, although there ~~is~~ ^{are} but nine of them. I am hoping that Dr Schlechter will send on the list of determinations quickly as I have 20 sheets all mounted up awaiting it.

On yesterday your letter of May 9th arrived, for which thanks. The covers also come to hand and were in good time. Thanks for these. The two photographs of Prof Pittiers find will have my earnest efforts to find at some early date. It is a good idea to send me this kind of information as it puts me on the lookout, with a *tangible object to look for.*

I note you say that I have outgrown the pigeon hole assigned to me- well, I am of opinion that it will take several such to accomodate all I will send you before I finish up Panama.

I will be delighted to get a copy of the paper you have in press, as I find all of your matter interesting and instructive. Can you send me a figuration of Masdevallia Livingstonianum and Selenipedium chica? ~~I wish~~

BALBOA, C. Z., PANAMA _____ 192

I wish them to show to my Indian collectors, ²As object lessons.
the appearance of
It seems that I cannot make them understand/these two plants. I
am anxious to get them.

I got off a letter to you on yesterday, which was all onesided-
that is to say it was all for me, like the Indians turkey and
buzzard tale; which no doubt you are familiar with, as it was said
to have occurred in New England during the early days.

No doubt you have seen Dr Barber, and he has told you of his visit
to my garden, and what he thought of it.

What name shall we adopt for the *Trichopilia* coccinea or marginata,
and do you wish any flowers of these intermediate colorings?.

Speaking of *Trichopilias*, there are two forms of *T. suavis*. One the
type and the other heavily marked with the red lines and spots. There
is also a pure white form. I have them all and will send you spec-
imens as soon as flower, if desired.

Very sincerely yours

C. W. Powell

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

May 22, 1922.

My dear Mr. Powell:

The labels have come, at last, and a package goes forward to-day. I enclose a few samples so that you can see how the type sets up. One or two of your sheets that were in duplicate, (one bearing flowers, the other foliage, as in the case of *Sobralia Powellii*) I have labeled and the result is very satisfactory. I hope you will be able to use the new labels freely and that you will be crying for an additional supply before very long.

I have written to Washington to see if a copy of Ridgeway's Color Standard is obtainable. If it is still in print you may be sure that it will reach you very shortly.

I am still puzzled by the *Congora* situation. Did you ever attempt to set these down in parallel columns, placing in a column under each species the characters that are not found in any of the others? This method is sometimes very illuminating. The results of such a comparison would be of profound interest at this time when I am trying to construct a key to the genus.

Yours with the best of good wishes,

Oakes Ames

355 Commonwealth Avenue, Boston, Mass.

May 22d, 1922.

My dear Mr. Powell:

Tom Barbour just came in to give me a glowing account of the work you^{are} doing. He was deeply impressed by what you have done and most enthusiastic over the opportunities that lie before you. He was full of regrets because he did not know before starting on his trip to the south that you would be in a position to receive representatives of the numerous orchids he encountered while he was in the field.

In your last letter you referred to the use of a camera lucida in connection with your studies of orchid flowers. For the smaller species it might be a good plan to try the camera lucida if you are endowed with capacity to draw in details after the outlines and salient structures are indicated. I would be pleased to send you one if your simple-microscope is adapted to the attachment of a standard camera lucida. It would be a pleasure to do this.

Barbour seemed to think that you would

profit by the use of slat presses in your preparation of herbarium specimens. Consequently I am ordering one for you. He also made some remarks about your troubles with mildew. As to this it may be well to scatter naphthalene powder among your specimens. Some men claim that this substance is not only valuable in keeping down fungus, but that it seems to hasten the drying of specimens. Undoubtedly this material is available in Panama. If not, let me know if a package would be acceptable.

If Schlechter is as good a correspondent with you as he is with me, I take it that you are not hearing very much from him just about now. I have not received one of his letters for nearly two months.

I have another paper coming through the press. A copy will be sent to you by the end of this month. The Goodyera paper ought to be coming along very soon. This one I know will be of exceptional interest to you as it attacks the orchid problem from an unusual point of view.

Yours cordially,

Oakes Ames

May 30th, 1922.

My dear Mr. Powell:

Your letters of May 18th and 21st, arrived this morning. I was delighted to receive them. The stamps you so kindly enclosed were very welcome to the little girl across the breakfast table. She sends to you her best thanks.

Now, to take up your questions and requests in the order of their appearance:

Powell 22 in Herb. Hort. Reg. Kew. is an unnamed *Maxillaria*. I would gladly send a flower to you, but the rules of the game necessitate that I first obtain the consent of the Director of Kew.

Powell 78 does not seem to be among the Kew specimens.

I am sorry that Dr. Schlechter is not more prompt in sending you the determinations of your material. I feared when you informed me of his promise to act on a two week's schedule that he would only sustain it for a brief period of time. I would feel much easier in my mind, where your interests are concerned, if Schlechter would publish your novelties promptly. It is so simple to name things that one may never publish, just to make a show of getting work done! I find in my studies of Schlechter's work for the National Herbarium that he has messed things

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

badly by following this system. Let me give you an example. He identified as two new species a couple of specimens that represented the same number. Identical specimens in every respect. He published neither name. But they stand in the herbarium as Epidendrum Adolphii and E. Tonduzii. Later he published as a new species his E. Henriei, based on the same number as the unpublished names! Then he published an E. Adolphi, but this was quite another plant which belonged to a different section of the genus Epidendrum. This new species he promptly reduced to the synonymy of Epidendrum pumilum Rolfe! As a result of such methods I am never sure of Schlechter until he commits himself in print, in the meantime he causes vexing perplexity.

As to metal drying frames: I am sending you the wooden type that we have found very satisfactory. If you do not like them, metal ones will be forwarded.

Camera lucida: See my letters of May 22.

Mould: See my letter of May 22.

Palaenopsis. Write to Elmer D. Merrill, Director, Bureau of Science, Philippine Islands. Use my name. I will write to him also.

Specimens may be sent as prepared. There is no need to await my return from Europe, unless you wish to do so.

Technique* Your specimens are exceptionally good. In mounting, the strips need not be so wide; If you are near

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a stationer's shop where they have one of those paper cutting boards you will find it very simple to cut the strips into the desired ^{with} lengths with desirable evenness. When you are ready to mount up a series of specimens it saves time to have the strips ready for clipping into the needed lengths.

The gummed silk will be sent in future with wax paper to keep the roll from sticking.

Masdevallia Livinstoneana. This is unknown to me. It was one of the species that Schlechter was to make a tracing of when he went to Vienna for me. As he was unable to locate all of the Reichenbachian things, it is probable that this was one of the species that he could not find. Cf. Orchid Review 26(1918)119.

Drawing of Selenipedium was finished at noon and has been sent.

Trichopilea marginata is the name I am using at this time.

Dried flowers of variations will be acceptable always!

The Panaman Epidendrum leucocardium of which I sent you a photo of Schlechter's type, is simple E. eburneum. I should have written this in my last letter.

With the drawing of Selenipedium I am sending you a reprint of another paper.

The length of this letter will explain why it is so snappy.

With the best of good wishes,

Yours cordially,

Oakes Ames

BALBOA, C. Z., PANAMA June 1, 1922 192

My dear Dr Ames:

The following list was received today from Dr Schlechter and I hasten to send you a copy of it. Some of the numbers are repeats, but that does not matter.

No	1	Oncidium, Oestedi	Reich.f. O.carthaginense	Sw
	15	Lycaste, Powellii	Schtr	N.S.
	52	Lockhartia, palida	Reich.f.	
	54	Oncidium, cheiroporum	Reich.f.	
	95	Encyclia, testacea (Batem)	Schtr	
	103	Stanhopea, Wardii	Lindl	
	137	Vanilla, pompona	Scheide	
	139	Epidendrum, tenuiflorum	Schtr	
	140	Lycaste, tricolor (Kl)	Reich.f.	
	162	Habenaria, avicula	Schtr	
	166	Cynoches, Warscewiczii	Reich.f.	
		heretofore determined as C.Chlorochilon		
	167	Xylobium, elongatum	Hemsl	
	207	Maxillaria, gatunensis	Schtr	N.S.
	208	Epidendrum, fragrans - var	Sw	
	209	Epidendrum, verecundum	Schtr	N.S.
	210	Camatidium, arachnites	Schtr	N.S.
	211	Scaphyglottis, Behrii	Reich.f.	
	212	Habenaria, Warscewiczii	Schtr	
		a very interesting rediscovery- only found once before in one specimen.		
	213	Peristeria, elata	Hk	
	216	Epidendrum, nocturnum - var	Jacq	
	217	Epidendrum, nocturnum - var	Jacq	
	228	Epidendrum, Powellii	Schtr	N.S.
	230	Sigmatostalix, Powellii	Schtr	N.S.
	11	Chondrorrhyncha, caloglossa	Schtr	
		sent in by me as form of C. Lipscombii, Rolfe - Powell		
	231	Ornithocephalus, Powellii	Schtr	N.S.

Dr S writes me that he has been very sick as the cause of his long delay, and that within a few days he will send me another list. A package will be sent you of specimens within a short time, say a couple of days.

Yours sincerely

CW Powell

BALBOA, C. Z., PANAMA June 2, 1922 192

My dear Dr Ames:

I will send you by tomorrows registered mail the following specimens:

No 1	Oncidium, Oerstedii	Reich.f.	
3	Sobralia, leucoxantha	Reich.f.	
17	Epidendrum, dendrobifolium	Schtr	N.S.
39	Epidendrum, fragrans (two forms)	Schw	
95	Encyclia, testacea (Bateml)	Schtr	
112	Epidendrum, Rousseauae (new form)	Schtr	
139	Epidendrum, tenuiflorum	Schtr	
162	Habenaria, avicula	Schtr	
212	Habenaria, Warscewiczii	Schtr	
230	Sigmatostalix, Powellii	Schtr	N.S.

Notes:

No 139 I thought that it would be best to allow your experts to reconstruct this, using the standard tape in lieu of that I had used. You will note that it is coming apart some.

Nos 162 & 212 have been made a long time. I will send you nicer specimens as soon as they grow a little more and flower again. They are now about half grown.

I have received your letter of May 22 also the labels. You see that some of them have been used tonight, ~~in the morning~~ on the sheets. I am rushing these off that I may get as many to you before you leave as possible. There are yet 14 sheets all mounted, awaiting list of determinations. Maybe will have it in time.

Very many thanks for the labels also for the other things spoken of in your letters- which I will reply to more fully, this one being only to advise the sending of sheets.

Very sincerely yours

C.W. Powell

You will notice that I have determined 2 sheets -
Nos 30 (one of the forms) which was based on the
other

No 112 Based on the "determined" form which
you now have.

June
May 5th, 1922.

My dear Mr. Powell:

I am sending to-day a copy of Ridgeway's book on color standards. Please accept this with my best wishes. I hope it will solve one of your problems and be an unfailing source of amusement.

Your much valued package of orchids reached me on Saturday. Is it necessary to inform you that this package had all the pleasure in it that any human being ought to expect? I examined the specimen of *Epidendrum Radlkofarianum* with keen interest. How do you separate this from *E. volutum* Lindl? I should say that the lines are not only too closely drawn, but that your friend Schlechter has overlooked the earlier specimen. There is no doubt in my mind but that your material is the same as that on which Schlechter depended for the description of the species. I have read what he has to say about it with deep interest, and my reason for suspecting that he overlooked the Lindley plant is based on the fact that he did not refer to it in his notes. He surely would have done so in those comparisons which are based on a review of near allies. When I visit Kew I will look again at the Lindley type and verify my notes.

I have found my old Leitz microscope and the camera-lucida that belongs to it. I tried it out this afternoon and found that it was in perfect condition. I may send this equipment to you with a few pages of instructions, before I depart for Europe.

A few words about your use of strips in mounting: Do not anchor leaves or flowers by strips that depend on security in adherence to plant parts. The strips should always have the free ends attached to the paper. It is better to use shorter strips. Although it is perfectly all right to use long ones if you wish when sticking down several stems, ~~XXXXXXXXXX~~ the short strips for each part look better.

It is certainly delightful to have an abundance of supplementary flowers in pockets! They save the mounted material when it is necessary to make examinations.

If there is anything I can do for you before I leave on June 28th you must hasten your requests. It has been a pleasure to help you.

Yours faithfully,

Oakes Ames

June 7th, 1922.

My dear Mr. Powell:

In one of your letters you requested that I should send to you from time to time news of any observations made on your specimens in the course of my studies. Yesterday I had in hand you no. 83. According to your list of identifications this number is Encyolia profusum (Rolfe) Schltr. Your notes on the sheet indicate that you had previously referred the specimens to Epidendrum spondiadum. Now, both determinations are radically erroneous. As to your material being E. profusum Rolfe, there is not a chance in the world! I tell you this after having boiled up a flower of the type for comparison with your specimen. Although I have not attempted to identify your specimen, as you will wish to write to Dr. Schlechter for a revision, you may be interested to know that I regard it as a new species. As yet 83 is only represented here in the Kew set. Material for the herbarium will be a welcome acquisition.

Cleistes rosea is badly needed. I hope you will turn this up in the near future.

Your specimens are so well prepared that it is a pleasure to work with them. This is especially true of the flowers in the pockets. Often it is possible to tint the labellum and other parts with colors that indicate the characters in my drawings. You are to be congratulated!

Most of the time is devoted now to preparations for departure on June 28th. There are so many notes to set down and so many problems to attack in order to ascertain what is needed from abroad that the days seem all too short. I feel pretty weary by nightfall.

Yours faithfully,

Oakes Ames

C. W. Powell,
Balboa, Canal Zone,
Panama.

BALBOA, C. Z., PANAMA

June 9, 1922

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My dear Dr Ames:

I will now reply to your letters of May 19 & 22nd, I would have done so before but have been quite busy with the specimens at nights, keeping off mildew. So far, good.

I am really pleased that Dr Barber told such glowing things about my place and I hope to deserve it all.

As to the Camera lucida, I do not think, in fact I am sure, that neither of those I have would be suitable. One is a Bausch & Lomb tubular, of two powers- for each eye piece- the lowest being 41 and the highest 470, the other being 87 and 900. My other scope is a Bausch & Lomb dissecting microscope, box frame, with sunken space under the glass stage, for the mirror, and black & white plate, for bringing out object. I will therefore have to buy a microscope with the camera lucida attachment already fitted.

Now as to the Gongoras- they have always been a trying one at best to me, and have always been somewhat of a puzzle. One of my previous troubles has been that all flowers dried out black, but now I have learned how to dry with a fair semblance of original colors; and I believe that I will have better success. While you are away on your trip I will make a special study of them, trying to bring out any of their salient differences under a descriptive brief. This you can go over on your return and let us hope that it will shed some light on them.

The slat press will be very acceptable, but I think that the iron ones as describes by Willis under collecting outfit- presses- would yield better results and be far more handy in the using. These are the kind that I requested you to ascertain what their cost would be in my letter.

As I understand the labels " type " are only to be used when your specimen was cut from the identical plant from which Dr Schlechtens was- that is to say by either the severing of rhizome or through the crown. There are some such, I will go over them and send you numbers. I know this because I have only one plant.

I hope that the Color standard, as written me of, will be available; it will solve many puzzling questions of color shades.

Naphthalene powder can be had in Panama and I will get some when I next go over.

I am enclosing 2 photographs and a flower, which I neglected to send with specimens, kindly file with it.

If I did wrong in determining the ^{form} Epid fragrans and Rousseau in last lot of specimens, advise me; or if not properly labeled let me know. These have now both gone to Dr Schlechter.

Very sincerely yours

CW Powell

3 Eye piece -
field not so rectified as other scope.

Very rectified field
magnification

355 Commonwealth Avenue Boston, Mass.

June 10th, 1922.

My dear Mr. Powell:

I enclose the "mosses" you sent to me for identification. I am sorry to have to confess that these specimens were inadvertently set aside by one of my assistants until yesterday. When they were called to my attention I sent them to Cambridge for prompt attention. Such misadventures of specimens, where a steady stream of them is flowing in from all parts of the world, are surprisingly rare. I am sorry that you should have been one of the correspondents to suffer through an exception to the rule, because I want you to feel that my resources are at your command and that you are entitled to prompt service.

Yesterday I came across a good negative of *Sel-nipedium Chica*. A print is being made for you and will be mailed to your address when finished.

I think I have caught up with all of our business. The slate is clean. Now it is up to you to find something for me to do.

Oakes Ames.

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

June 12th, 1922.

My dear Mr. Powell:

Your letter instructing me to be on the watch for another package of orchids has just come. Also your supplementary list of Schlechter's identifications based on your numbers. I have checked up the Kew Set in conformity with our plan.

Encyclia testacea (Batem.) Schltr., is undoubtedly a slip for *Epidendrum tessellatum* Batem., as Bateman never published an *E. testaceum*. I believe *E. tessellatum* is intended. Your material, however, is not that species, if I understand it correctly, but rather *E. tripterum* Lindl., a near ally of *E. tessellatum* which has been reduced questionably to *E. tessellatum*. As a matter of fact your material is similar to if not identical with *E. Deamii* Schltr., from Guatemala, a species that I consider too close to *E. tripterum*. I have marked the Kew specimen *E. tripterum* Lindl. If I find sufficient evidence to change my mind I will write to you.

Chondrhyneha caloglossa is sailing pretty close to the wind. Schlechter in 1913 originally published this as *Waresewiczella caloglossa*. I have not boiled up flowers for a critical comparison, but from the general aspect of the flowers of the two species it comes painfully close to *C. Lipscombiae* Rolfe.

Oncidium Oestediti Reichb. f. is regarded as a variety of *O. carthaginense* by Kraenzlin in his recent monograph of the genus *Oncidium*. I am inclined to agree with his deductions. The differences between the normal form and the several recognized varieties are very slight. Reichenbach himself regarded *O. Oestediti* as a variety of *O. carthaginense* and showed good judgement. When your specimens arrive it will be interesting to study them.

What slip have you made with *Habenaria avicula* Schltr? Your 162 in the Kew Set is surely not the species Schlechter described as *H. avicula*. I am waiting impatiently for the specimens you are sending as this is one of the species that I have been studying recently. The Kew 162 (small flowered form) is a new species as I now see it, not *H. avicula*. Either you have mixed labels or twisted things, or else Schlechter's botanical optics need attention.

Yours cordially,

Oakes Ames

June 13th, 1922.

My dear Mr. Powell:

The package of specimens arrived in good condition this afternoon. Accept my best thanks for this most commendable example of good herbarium work. One or two plants need attention. These I will take up as briefly as possible.

You 162 (as represented in Ames Set) which Schlechter refers to Habenaria avicula Schltr. is conspecific with H. patentiloba Ames. Schlechter's description appeared in June 1921; mine was published in December 1921 before I received a copy of Schlechter's paper. You will wish to enter this fact in your reprint from Proc. Biol. Soc. Wash.

Your 162 as represented in the Kew Set is a mixture of Habenaria petalodes Lindl. (H. Warscewiczii Schltr.) and a small flowered species, probably referable to H. petalodes Lindl. var. micrantha Reichenb.f. (Cf. Ames ORCHIDACEAE IV. p. 264.) This small flowered plant may be sufficiently distinct to be described as a new species.

Your 212 of the Ames Set is Habenaria petalodes Lindl. (H. Warscewiczii Schltr.)

Habenaria Warscewiczii is, in my opinion, hardly distinct from H. petalodes Lindl. The flowers agree in structural details with Lindley's type specimens preserved at Kew. The question seems to be: how close are we to draw the lines in our conceptions of species. Nothing is gained by dwelling on trivial details.

In my letter to you, written yesterday, before the specimens now under consideration arrived, I referred to you 162 of the Kew Set as having large and small flowers. At present I believe the small flowered species represents what Reichenbach described as H. petalodes var. micrantha. Mingled with 162 of the Kew Set there are large flowers which are surely referable to H. petalodes Lindl. and which are equivalent to your 212 of the Ames Set determined by Schlechter as H. Warscewiczii. My specimens of H. petalodes from Taboga Island are identical with your 212.

The above remarks should clarify the situation just a little bit.

Please keep on the alert for additional specimens of the small flowered form.

I enclose a tracing of Lindley's H. petalodes.

Yours faithfully, *Oakes Ames*

BALBOA, C. Z., PANAMA June 15th, 1922 192

My dear Dr Ames:

I have your much esteemed letter of ~~May~~ June 5th and I note the sending of the Ridgeway color standard, which has not yet arrived, but will do by next mail as package mail does not get here as promptly as letter. Will you accept my very many thanks for it. I do not know it, but I feel sure that it will solve many of my doubts.

I also note the prospect of your sending me your microscope with camera lucida attachment. How can I thank you for this. It is beyond me. I will learn its use, and you can be sure that it will yield you many a picture from living objects, which I feel sure are far and away preferable to pictures from dried materials. My idea is to confine myself to living flowers.

I wish I could send you the lot of specimens I now have mounted before you leave for Europe- some of them are very beautiful, and practically all novelties.

How long do ^{you} expect to be away?, I will have for you quite a large lot of them awaiting you on your return.

If you will remember that I wrote you on my return from Chiriqui that I procured two varieties of *Pleurothallis* which were smaller than *P. panamensis*, One of them is now about to flower out, one flower showing today. It is the prettiest little thing I ever saw. Sepals transparent white, petals red, lip the most brilliant scarlet. It looks like a drop of blood had fallen in the center of the flower. More than one flower will show on a stem, cant say now how many.

E. Radlkoferianum have not yet had time to look up the *Epid. volutum* Lindl, but will do so, and I will probably call Dr S attention to it. He wrote me that it was one of the specimens from the Moritz Wagner herbarium, presented to him by Prof Radlkofer, and was so named in his honor. It seems to me to be distinctive enough not to be confused with something else, ^{and} or to be remembered. Hence I think that Dr S must have either overlooked *E. volutum*, or that he had failed to have knowledge of it.

The weather here is very trying in the making of specimens. Sometimes we have for a week or more a spell of ~~damp~~ rainy weather, with a warm, damp, sticky atmosphere. This gets into everything, and moulds overnight a specimen. I have lost in the past a great many. I now dry out every specimen over the stove before going to bed- I dont mean heating it, but drying out the days accumulation of moisture. Such we have had for the past 10 days and it has kept me busy. If it lasts long enough, it even gets into the perfectly dry specimens. So I take no chances, but overhaul my herbarium whenever such a spell comes along.

BALBOA, C. Z., PANAMA _____ 192

How I wish that we had got together in 1918- what a book on Panama Orchids we could have gotten out by this time. It would have been a classic. You cannot imagine the discouragements I have had all along. No one here to say a word to about Orchids, who knew the least thing about them. My friends calling me "a nut" because I devoted my time, energy and money to them. Yet, I have never waivered a moment in my determination to create a garden of all of the Panama varieties, and I believe that I will succeed. I once thought that 200 would cover them all, but now I feel quite sure that they will exceed 300, perhaps even up to 400, in number. One thing that has always been a puzzle to me is- how Prof Pittier and others ~~x~~ could come down here, spend a month or more with a ~~kn~~ big party, spending a thousand or more dollars and show such meager results. There was a party here about a year ago from Scranton, Pa. who had with them the Botanist of the State of Pa ~~with them~~. They made a great flare in the papers about what they were going to do, and I am told that after about six weeks trailing around ~~that~~ they returned home with a very limited number of varieties. They must have spent, including their salaries, some \$ 2000 dollars. One of the party come to my place and wanted me to allow him to make herb specimens from my plants. This I declined, but told him that he could make pictures, drawings, and press such flowers as might be available. This did not suit him, and I never saw him again.

Pardon this digression, it was just a passing thought induced by my regrets that it so happened that we did not "hitch up" before I even had sent a specimen to Kew, or to Schlechter.

I hope that your trip to Europe will be pleasant and successful

Most sincerely yours,

C.W. Powell

over

The slatted drying frame has arrived and is a beauty. It is not like I thought it would be, it is so much lighter and handier. I am sure that it will answer equally as well as the metal one and therefore I will not need one.

Did you receive the letter of March 26th with four specimens of mosses, with request that you would have them determined for me? You have not made mention of their arrival, hence this query. Do not forget the adhesive tape (plaster) and send me some before you leave. I am nearly out.

Make a memorandum to ascertain whether Kew has issued a "Hand-List of Orchids, contained in The Royal Botanic Gardens" of later date than that of 1904. If so, will you kindly send me one. I have the 1904 issue and it has been of great service to me.

I would like also to receive the Kew Bulletin. I wrote them once and enquired if it was sold to subscribers, but did not have a reply. Ascertain for me will you.

When you see Dr Schlechter, if he has not already put his Nov et Cr of Panama Orchids to press, please stir him up on it. Go over any doubtful ones with him, and thus eliminate future corrections or synonyms. Act for me as if it were your own. You have full authority and liberty of action. I am to pay the cost of issue.

There is a mail in from New York ~~tomorrow~~ tomorrow, I do so hope to have a letter from Dr S with a list- if so, I will get off to you by first mail the remaining specimens, now ready and undetermined. You will thus receive them close to but before you leave.

June 16th, 1922.

My dear Mr. Powell:

I have just been studying the Central American Epidendrums in the alliance of your 112 (Epidendrum Rousseauae Schltr.). In the details of the flower your specimens seem to be a counterpart of E. laterale Rolfe, a Costa Rican species. Rolfe described slightly larger flowers, but his sketches and the material he worked with, resemble E. Rousseauae so closely that one would be treading on dangerous ground who attempted to recognize two species. As Schlechter did not include E. laterale Rolfe in his list of Central American orchids, perhaps he did not know of it. For your consideration I enclose a tracing of a flower of E. laterale made from a sketch of Rolfe's type specimen. The habit of the type is very similar to that of your 112.

There is one very delicate point for consideration at this point. Rolfe in his original publication of E. laterale hardly described the species with sufficient attention to botanical demands. Although he referred to the alliance to which his species belonged, mentioning E. Stamfordianum, and made remarks about the nature and color of the flowers, he made no mention of the perianth organs. Even in 1920 when he gave more details, he hardly made up for his former slipshod treatment. The question is: Does the Rolfean E. laterale of 1912 antedate botanically the E. Rousseauae published by Schlechter in 1918? I am inclined to strain a point in favor of Rolfe, but whether or not impartial systematists will follow me, is a question for which I have not the answer. Rolfe's name is not strictly a nomen nudum, because he did give a characterization that would help in placing it. His type is in good condition. He used the name twice prior to 1918, and separated his species clearly from E. Stamfordianum its nearest and only ally!

With these notes before you I ask that you draw your own conclusions.

I am, indeed, sorry, that my recent letters seem to stress the uncertainties of systematic botany. Perhaps they remind me of one of your early letters to me in which you implied that because the types of Central American orchids were in the botanical treasures of Europe, our American botanists must of necessity yield to the superior opportunities of their European colleagues. From my recent letters it would seem that the location of types is but a step toward finality in botanical work. Finality? What a word to use, when classification is so largely based on

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

studies made in botanical morgues, ^{ere} while procrustean methods reduce to the limits of standard sized rectangles of paper the plant fragments we must interpret.

I have been very much perplexed by the Epidendrum fragrans group. I have studied the species very carefully throughout its range and I am in a perfect tangle of opinions. If you come across specimens in your rambles it would be a kindness if you would make specimens for me and at the same time submit observations regarding the different forms. Another group that has given me a heap of trouble is the E. difforme group. Isolated forms resolve themselves properly enough, but when you glance at the variants that turn up from Florida to Brazil and stray into the West Indies you begin to wonder what on earth the species really comprises. A study of this species and its allies is a crying need in our business. Any attention you are able to give to this matter will be a substantial help. I wish you could see the range in size of the flowers now mounted in glycerine on my laboratory table.

I intend to write to you from Europe whenever I make notes that may be of interest or assistance to you.

Yours faithfully,

Oakes Ames

P.S. I have written to Professor Merrill regarding your desire for specimens of Philippine species of Phalaenopsis.
O.A.

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My dear Dr Ames:

While sitting in my office this afternoon cogitating, an idea struck me with the force of one of our navy 16 inch shells, and I am hastening to send it to you trying to catch you before you sail for Europe.

The great idea is this - if it is practicable.

Schlechter has, or nearly has, completed his manuscript of my Panama Orchids, and has it ready for publication. He notified me last November that I would have to pay the cost of its publication and that it would cost me between \$ 30 and 40. This I acceded to and advised him I would send him the money whenever he called for it. You are going to Berlin to see him, why not suggest to him to let you bring it out as one the Bussey Inst or Ames Lab publications. I am still willing to pay the cost up to \$ 40. Suggest it to him ^{from} not as coming ~~to~~ me but as an idea of your own. He told me that he expected to write it in English. If he agrees to it, go over it with him, making such emendations or amendments as seem to be appropriate. I would much prefer that it come out as an American publication, issued by you. I would not hurt his feelings by my making this suggestion, and hence I suggest your doing it - a very natural and proper thing for you to do, without it being misconstrued. Think on this. At any rate, if you have the time and feel the inclination, I would be glad for you to go over it with him. This will, I feel sure, tend to make it the more perfect.

Most sincerely yours

C. W. Powell

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

June 19th, 1922.

My dear Mr. Powell:

I enclose two photographs of Selenipedium Chica Reichb.f. You will notice the elongated fruits. These are said to have been used like vanilla. The plants from which the photographs were made came from Ancon Hill. The white substance protruding from the pouch of the only mature flower is simply cotton-wool which Mr. Killip used to preserve the shape of the labellum. I hope the photographs will make clear what is needed and that some of the natives will recognize the plant.

As you undoubtedly know the typical form of Epidendrum difforme Jacq., a little brother of your #82 (E. chlorocorymbis Schltr. ined.), I am writing to request that you keep on the look-out for a species that resembles it very closely; a species which at present is only known from Costa Rica. I refer to E. majale Schltr. (which, of course, is nothing but E. firmum Reichb.f.). This species ought to be found in the Chiriqui region, where other Costa Rican species spill over into the flora of the Isthmus. As I informed you in my letter of the sixteenth June, I am working intensively on this group of Epidendrum and need many specimens from which to establish the range of variation. The fact that you are situated in what should prove to be an interesting melting-pot for some of the weed-orchids that seem to revel in deviations from the botanical

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norm makes me hope that you will take advantage of your opportunities.

Personal opinion is a strange phenomenon! I have just been working through a set of Liebmann's orchids from Mexico which Reichenbach identified. Some of the species seem never to have been published, while some of the determinations are strangely wrong. For example, there is a species comparable to your #95 (Encyolia testacea (Batem.) Schltr.,) which has been passed as Epidendrum venosum Lindl. The great German orchidologist was surely dozing off into dreams of what bizarre names to use next when he made that determination! The species is the E. tripterum form of E. tessellatum (E. Deamii Schltr.?). You may not be interested in such observations, but, after all, they give you an idea of the trials of orchidological work. They prove that even the immortal Reichenbach, with all his facilities, was unable at times to give his correspondents reliable information. How quickly familiarity with ^{the} their work demolishes some of the idols of our novitiate!

You will be pleased to learn that I have made photographs of some critical specimens from the Kew Set and that I have illustrated them with very careful camera-lucida drawings. Before I return the Kew Set I hope to make records of the entire series of your numbers.

Yours of June 9th is just here. I will send you my Leitz outfit. If you find that you are able to make head-

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BOTANIC GARDEN OF HARVARD UNIVERSITY,

CAMBRIDGE, MASS. U.S.A.

way as a camera-lucida artist, there will be time enough when I return from abroad to fit you out with a more up-to-date equipment. Improvements, however, are more mechanical than optical. The camera-lucida is by no means a royal road to artistic rendering of botanical details.

The last time I saw metal presses in use was in Rio de Janeiro in 1915. Dr. Löfgren was using them at the Botanic Garden. We have discarded this type of press here, as the wooden ones do the work just as well and are wholly satisfactory. I doubt very much if the metal ones can be obtained in this vicinity. The wooden slat presses are now used by all of our leading herbaria. Furthermore they are better adapted for taking into the field.

Please send list of plants of which you only have one specimen so that I can mark the specimens already taken from them as types, or actual records of Schlechter's determinations. This is such an important part of the business that it comes up first in my mind when I review your material. It would be wonderful thing to reserve a few flowers from the specimens sent to Schlechter so that I could have here a "control Set". These flowers could be kept in pockets, and when new, marked with the type label. They would be an everlasting check on his published work. The *Habenaria Warscewiczii-avicula* mix-up, alarmed me to an unpleasant extent.

If you use the Ridgeway color standard when you make

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your notes, it will be possible for me to color my camera-lucida drawings with some approach to accuracy.. A great scheme if you have the patience for it. Try this out and I will send you a sample drawing----- If we can maintain our enthusiasm we ought to have barrels of fun together although geographically isolated.

With the slat press I ordered sent to you an additional supply of felt driers. These are the regulation thing and will give you far better results than news-papers. I have already written a description of the methods we use here, that is the method of transferring specimens from wet to dry felt driers in permanent news-paper stock folders. If after specimens have been drying for a day or so the flowers are placed between ^{several} sheets of ^{blotting} paper and ironed with a flat-iron you can keep the colors of most things almost perfectly. I used to do this with ~~Panlopedium~~ ^{now} hybrids and their parents. These dry in a most unsatisfactory way unless they are ironed until thoroughly dry. This method takes time and is only resorted to when very fine examples are needed, and color is of paramount importance in drawing distinctions.

I won't bother you ^{with} any more writing. ^{now} I have used up enough of your time for a little while.

Yours faithfully,

C.W. Powell.

June 20, 1922

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My dear Dr Ames:

Your letter of 7th was received by me tonight; and, although you will not receive this before your departure, I thought it best to reply so that you would find my letter on your return, after fearing that I might overlook the matter ~~at~~ so long a time.

I am referring particularly to my No 83 in Kew Herb. This plant was originally sent to me by Mr Lankester of Cartago, Costa Rica, without name. Later upon my trip to Chiriqui I procured several plants with the same flowers. Later Mr Lankester wrote me it was *E. spondiadum*.

It flowered soon after I received it from Mr L., advising him that it was from Costa Rica. and I sent a flower specimen to Mr Rolfe. When the Chiriqui plant flowered in April/I sent an additional specimen to Mr Rolfe with a memo reading "No 83 *Epidendrum* ~~ex~~ *spondiadum* - additional. Chiriqui, 4500-5000 feet.

The specimen of No 83 sent you Apr 16, 1919 was from Costa Rica and I have since learned that it was *E. spondiadum*. When in Chiriqui on my last trip I procured a number of this plant. So we now know that it is from Panama as well as Costa Rica.

Pseudobulbs similar to *E. atropurpureum*, but the leaves are narrower. Flowers, green sepals and petals, lip cordate with purple lines down the center "

Mr Rolfe wrote me under date of Oct 27, 1920 as follows: "I compared your No 83 with the original of *E. profusum*, Rolfe (B.M.t 8551) and it is really different. I did not quite make out what it was, but shall try again "

Dr Schlechter upon receipt of specimen No 83 wrote me "No 83. *Encyclia*, *profusa*, ? Can this really be the *E. profusum* of Rolfe. I have as yet not been able to get the plate of the Bot Mag t 8551 " To this I replied under date of Oct 12, 1921. "NO," The matter thus stands. Recently I have sent him a pressed and dried specimen of the plant and more flowers, and I am now looking for his revision of the name. The uncertainty of the name is the cause of your not having been sent a specimen. I have it all ready.

I thank you for these observations of yours and I hope you will keep them up.

Most sincerely yours

C. Powell

I could not now call it *E. spondiadum* under any circumstances, as I know better.

BALBOA, C. Z., PANAMA June 21, 1922 192

My dear Dr Ames:

This is another letter which will greet you on your return. It is written now in order not to forget it as I might if I waited. It ^{is} done to clear Dr Schlechter and to set matters straight. I refer to that part of your letter of June 12th, received today, regarding No 162 Habenaria avicula. The facts are as follows; the mistake being mine entirely. Just before I sent No 162 to Mr Rolfe as a specimen, (accompanied by ~~a~~ smaller flowers of what I thought to be an Habenaria,) one of my Indians brought me these two plants in flower. I cut them and made a specimen of all the flowers, as I thought I could get others later. The plants died down as is their custom, and never come up again. Thus I was without plant or flower. The following year my man brought me several Habenaria plants, which upon flowering, I made 3 specimens, sending one to Dr Schlechter, retaining two, (one of which I sent you a few days ago as H. avicula) When this plant flowered I called it No 162 believing it to be the same as the ~~6~~ specimen I had sent Mr Rolfe. If you will refer to my letter to you Jan 22nd you will find that as I was doubtful in my mind, I wrote you as follows about No 162 of Kew specimens:

"No 162 Habenaria is mixed flowers, the larger flowers I believe are the type (Schlechters specimen), this you can adjust when you receive official type of plant and flowers. Throw away the other flowers"

As I have no plant or flowers of those embraced in Kew No 162 I think it best to throw away the flowers entirely and I will send a good specimen ~~xxxxx~~ of actual No 162 to replace them. I will sooner or later come across the dead plants again, and will make

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new specimens with new numbers. By the way this reminds me to say here: The leaves of No 162 are of a yellowish green, and are the ^{shape} same plants ~~from which~~ as No 212, which has leaves of a blue-green color. I found No 212 personally. Both of these are in the same containers as originally planted, ~~and~~ have come up beautifully this year, and will flower again before a great while passes.

So you see that the mixup is all mine and not Dr Schlechter's error. You will find that the specimen of No 162 sent you to be all correct.

Your letter with the determination of the mosses also arrived today, for which many thanks. I thought all of the specimens were Lycopodiums and had so stated, and was called down by an ex Univ of Nebraska botanical man, living here, but who takes no longer ~~any~~ interest in botany. He admitted one was, one doubtful, and two were not.

I have another list from Dr Schlechter today. As there is no hurry now about it, I will copy and send on in a short time. He has revised two or three of his previous determinations.

I am sorry that you go away carrying with you the idea of the mixup in the Habenarias.

Most sincerely yours

C. W. Powell

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

June 26th, 1922.

My dear Mr. Powell:

Your letter of the fifteenth June is
just at hand.

Regarding my plans for the summer: The
steamer I was to sail on, the Samaria, had engine trouble
and put back to England. This accident necessitates a change
in my actions and I am now booked for a steamer that leaves
New York on July eleventh. I have engaged return passage for
September sixth. This indicates a return to native shores by
the middle of September.

Epidendrum dendrobiflorum does not seem
to be the same as E. stenopetalum. You will be interested
to know that I have found specimens in the National Herbar-
ium bearing the name E. stenopetalum that Schlechter had
determined. I realized that he had slipped.

The specimens of Pleurothallis from
Chiriqui ought to be new. I hope you will prepare specimens
for me.

I regret more than you do the accident
that turned the stream of your specimens and the results of
your labors toward a foreign land.

I wonder what this poor old world would
have been like if there had been no "nuts". Somebody has

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just discovered that the "nuts" who devoted precious hours to the classification of floss and their allies did a great service to humanity. The greatest obstacle to progress is the poor fool who has not yet waked up to the realization that science (and every one of its branches) has done more to bring happiness among us than any other thing of which we have knowledge. To me your work has brought a great deal of happiness! The medicine of the fifteenth century would have been good enough for the men we meet to-day who think that money is power and business is life. It is the tendency in us toward research that puts us above the beasts of the field. Not the desire to ~~make~~ fatten our bodies with tasty food and to dissipate our energies in the realm of finance.

Now that I know the slat drying press is satisfactory I will cease to make efforts to find a metal one.

I have already sent to you the identifications of the "mosses".

Adhesive tape was ordered some time ago, but has not yet arrived. When it comes to hand it will be sent to you promptly.

I hope the free use of naphthalene will reduce your troubles caused by mould.

Under separate cover I am sending you my paper on the mycorrhiza of *Goodyera*. When the good copies arrive I will send you one to accompany the paper of *Spiranthes* which

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is number one of the New England orchid series. I think you will enjoy this paper as it brings up some very interesting points for thought.

When I see Dr. Schlechter I will try to stir him up a bit.

I will see what can be done to have the Kew Bulletin sent to you. Now that Rolfe has passed on I am afraid that there will be little or nothing in the orchid line for us in future issues of the bulletin.

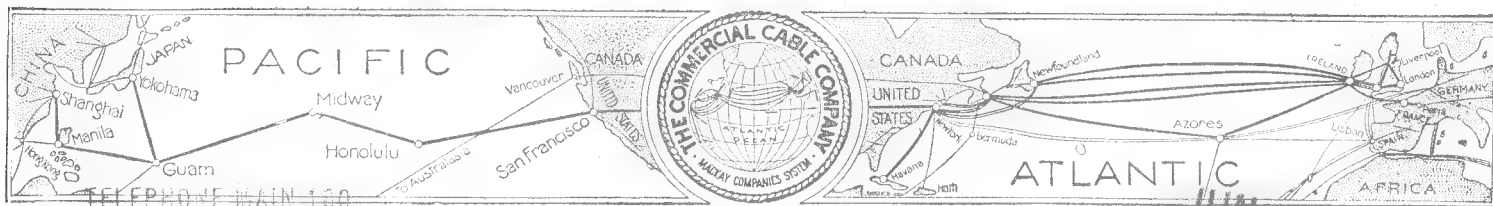
I think this covers everything for which your letter suggested a remark.

Yours faithfully,

Oakes Ames

CABLEGRAM

107



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OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

June 29th, 1922.

My dear Mr. Powell:

The good news of the discovery of Seleni-
pedium Chica came through promptly by cable and brought much
joy into this part of the world. When flowers are obtainable
a few should be placed in formaline solution. This is one of
the rare species that has not yet been satisfactorily describ-
ed. If you give me a record of the colors by means of the book
I sent you, and submit a key sketch for their distribution, it
will be possible to have Mrs. Ames make a water-color drawing
for the herbarium. CONGRATULATIONS.'

Yesterday your letter with the proposition
to publish your results in one of my volumes of Orchidaceae
arrived. There is one very serious objection to this at the
present time. I will tell you about it. Volume eight has been
planned as an Orchid Flora of Mexico and will not appear un-
til late next year. In the meantime Dr. Standley's Flora of
Central America will take up most of my time and it is of
the first importance that your Panama orchids appear before
I complete my part of Standley's enterprise. It would be
folley to go to press with the full knowledge that scores of
new species would be described almost on the day of publicat-
ion of what should be a very thorough survey of the Central

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

American field. There is one other point, not so important, perhaps, and that is my rule to open the pages of *Orchidaceae* only to authors who work in co-operation with me. While at first I was inclined to treat my serial as an open avenue to authors who had critical work on orchids to place before the world, I soon arrived at the conclusion that with five volumes behind me it would be well to keep on as I had been going and to make *Orchidaceae* a one-man job. Some day you may wish to have a critical revision of the orchids of Panama placed before the orchidologists with illustrations of the species. It would be a pleasure to co-operate with you for this purpose and to give you a place, as Field Author., in a volume of *Orchidaceae*. You would enjoy this work because it would call for critical field studies, intensive herbarium work in the great museums of the world, and make possible the illustration of the complete orchid flora of Panama up to the time of going to press. My work for Dr. Standley has given me a pretty fair start toward keen familiarity with the flora from northern Mexico into northern Colombia, so that I am in a position to co-operate with you to the fullest extent.

When I meet Dr. Schlechter I will put the matter of publication before him and you may rest assured that it will be a pleasure to further your interests to the full limit of my ability and influence.

Epidendrum tenuiflorum Schltr. should be closely compared with E. centropetalum Reicheb.f. Costa Rican material in Herb. Ames that is reasonably authentic through comparison with Reichenbach's description and plate and with tracings from the Vienna type, are painfully close to the Powell specimens. The chief difference seems to lie in the relative proportions of the lip. (Schlechter's E. tenuilabium in the National Herbarium, a name, which I take it, had its origin in a Schlechterian slip of the pen, belongs here. No E. tenuilabium Schltr. has yet been published.) It would be well to be on the alert, when you visit Chiriqui again, for a broad leaved form of tenuiflorum-like aspect which has a different callus on the lip, a median one with the tip free from the disk of the lip. This is the E. aberrans of Schltr.

Gongora tricolor of the Powell collection seems very much the same thing as a Reichenbachian specimen in Herb. Ames prepared by Reichenbach from specimens cultivated in Bot. Gard. Hamb. Reichenbach identified this specimen as G. quinquenervis. G. Powellii Schltr. seems to be very close to this species? Your opinion as to this should be more trustworthy than that of Schlechter.

I have packed up the camera-lucida out-fit and this goes forward to your address either to-day or to-morrow. I have included the lowest power spare lens I had on hand. This gives magnifications which you will find most useful

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

in making drawings of the average orchid flower. Even with this lens you will find it difficult to do more than draw the single parts of the larger flowers. Usually the labellum is selected for drawing, in such cases, as the details of the calli and the lobing of the lip are the important things. To make your beginnings less burdensome I have written out a few directions for you to follow. These I will send on as soon as I can get them typed. Please remember that in successful drawings the capacity to fill in surface details which are ~~often~~ obscure under the camera-lucida is necessary. After you have indicated the outline of the organ being drawn, or the complete flower in such species as *Pleurothallis*, and have, perhaps, suggested the dim surface details which are just perceptible through the camera-lucida prism, the drawing is completed with the camera-lucida removed. In my laboratory the final drawing is done with the aid of a binocular dissecting microscope. This type of instrument gives great depth and brings out structures that are often obscure when a monocular dissecting microscope is used. Experience in this work is everything. Don't get discouraged if your beginnings are unsatisfactory. A little patience will bring facility and the results to be obtained are well worth conscientious effort. DONT HURRY, LEARN TO USE THE SUB-STAGE MIRROR, EXPERIMENT WITH THE SOURCE OF LIGHT AND WITH DIFFERENT INTENSITIES OF ILLUMINATION OF THE OBJECT FROM ABOVE. USE HARD, SHARP PENCIL.

OAKES AMES, DIRECTOR.

BOTANIC GARDEN OF HARVARD UNIVERSITY,
CAMBRIDGE, MASS. U.S.A.

MAKE THE FIRST OUTLINE WITH A DELICATE TOUCH, THAT IS, DONT
BARED DOWN TOO HARD. BEGIN YOR EXPERIMENTAL DRAWINGS WITH
A SINGLE ORGAN, SUCH AS A PETAL DISSECTED OUT FROM THE FLOW-
ER. ALLOW THE LIGHT TO COME OBLIQUELY FROM THE LEFT AND BE
SURE THAT THE PAPER IS WELL ILLUMINATED.

I hope you have received a final list from Dr. Schlechter.
He takes his vacation through July so that if you do not re-
ceive it soon you may rest assure d that he will not do much
for you until September.

Cordially yours,

Oakes Ames,

I hope that your mail will be forwarded to you.

BALBOA, C. Z., PANAMA July 2, 1922 192

My dear Dr Ames:

On June 26th afternoon I cabled you
 "Have found *Selenipedium chica* plants. Pleasant voyage"
 That noon my Indian brought me in two plants which I promptly
 identified as the *chica*, and as I knew it would give you pleasure
 I sent the cable. One has last years seed capsules on it.

He is not out
 looking for
 others.

On June 29 I received your letter of 19th with
 the photographs of *S. chica* and I made further comparison which
 confirmed the one made on 26th.

I will now take up your letter and reply to it.
 I think it best to do this now instead of waiting until your re-
 turn. I will keep a look out for *E. difforme* Jacq (*E. firmum* of
 Reich) (*E. majale* of Schtr). I would not be at all surprised if I
 had it in my hands last January when in Chiriqui, as I come across
 several plants like my No 82 *E. chlorocorymbis* of Schtr, and thinking
 them the same, did not bother to bring out of the jungle with me.

I have written Schlechter regarding all errors
 which you have pointed out, ofcourse not mentioning you in the
 matter even by inference. I wrote and suggested that he look them
 up.

I note that you have made photographs of a critical
 set from the Kew specimens. Now as it is not improbable that you
 had printed several copies, I would ask that you will send me one
 of each photo which you may have made of any of my specimens. I
 would be delighted to have them to file with my herb specimen.

I have received the Ridgeway color standard and I
 think that next to Willis book, it is the best thing I have of a
 reference kind. I will use it freely after this, especially when I
 make a critical specimen.

I wrote you an explanation of the mix up in the
Habenaria No 162, in my last letter. When you read it you will see
 that you were "alarmed disagreeably" without sufficient cause.
 The matter was simple and you had already some time ago been put
 on your guard against a possible error, by me, in regard to the Kew 162.

I have given my Indian a special commission to
 devote his entire time for several trips in different sections to
 procuring all of the *Habenaria* plants he can find, say six of a
 kind; he to make careful examination of the plants as he encounters
 them, by comparison with those he has already found on the trip.
 This man has been carefully trained by me and is a bloodhound after
 anything I tell him to make a special hunt for. I am therefore
 sure of getting my hands on several varieties. He has been working
 for me for the past 5 years.

The *Cleistes rosea* is in bud, and I am sure that
 unless something untoward happens you will find on your return a
 specimen awaiting you.

BALBOA, C. Z., PANAMA _____ 192

In regard to the Epid fragrans: I have some 6 and perhaps 7 in distinct styles of plants or flower markings (flowers typical in shape) The others will be sent you in due course after flowering and specimen made. At least one should be re-classed as Encyclia. I will have your request in mind and make any notes I think worthy. I have written to Dr Merrill at Manila as suggested by you about the Phalaenopsis plants.

During this week I will send Schlechter another specimen of the Epid Rousseau. Schtr, and at that time will call his attention to E. laterale of Rolfe. A query here arises in my mind - Why did not Rolfe determine my specimen No 112, and advise me? I called his attention particularly to what I thought was an anomaly in its basal flowering. When I receive the Camara lucida I will make this ~~flower~~ my first study, as it is now in flower.

With this letter I am sending you a list of specimens to be sent on tomorrow and a copy of Schlechters last list.

Very sincerely yours

C. W. Powell

BALBOA, C. Z., PANAMA July 2, 1922 192

My dear Dr Ames:

I will tomorrow send by registered mail the following specimens, which I hope will be interesting.

No 51	Lockhartia, aurantiaca	Schtr	N.S.
72	Brassia, longissima- minor	Schtr	N.V.
126	Schaphyglottis, dolichophylla	Schtr	N.S.
136	Maxillaria, aciantha	Reich.f.	
161	Oncidium, confusum	Reich.f.	
177	Oncidium, cerebriferum	Reich.f.	
214	Maxillaria, pubilabia	Schtr	N.S.
219	Pleurothallis, pyrsoles	Reich.f.	
224	Pleurothallis, dubia	A.Rich & Gal	
225	Hexadesmia, Powellii	Schtr	N.S.
229	Hexadesmia, rhodoglossa	Reich.f.	
223	Scaphosepalum, panamense	Schtr	
232	Stellis, Istami	Schtr	N.S.
234	Stellis, praemosa	Schtr	N.S.

Very sincerely yours

C. W. Powell

BALBOA, C. Z., PANAMA July 2, 1922

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My dear Dr Ames:

Following is list from Dr Schlechter received a few days ago:

No	51	Lockhartia, aurantiaca	Schtr	N.S.
	231	Ornithocephalus, Powellii	Schtr	N.S.
	135	Trichopilia, suevis, floribus albis	Lindl	
	214	Maxillaria, pubilabia	Schtr	N.S.
	136	Maxillaria, aciantha	Reich.f.	
	189	Encyclia, alata (Bateml)	Schtr	
	233	Epidendrum, Turisiva	Reich.f.	
	228	Epidendrum, Powellii	Schtr	N.S.
	141	Epidendrum, fragrans- var cylindrobulbon	Schtr	N. V.
*	134	Scaphoglottis, Powellii	Schtr	N.S.
	126	Scaphoglottis, dolichophylla	Schtr	N.S.
	225	Hexadesmia, Powellii	Schtr	N.S.
	229	Hexadesmia, rhodoglossa	Reich.f.	
	219	Pleurothallis, pyrsodes	Reich.f.	
	224	Pleurothallis, dubia	A. Rich & Gal	
*	92	Pleurothallis, pyrsodes	Reich.f.	
	232	Stellis, Isthmi	Schtr	N.S.
	234	Stellis, praemosa	Schtr	N.S.
	223			
	235	Scaphosepalum, panamense	Schtr	

* Notes:

92 Formerly determined as P. barboselloides Schtr
 134 " " " S. mesocopis Reich.f.
 Kindly make corrections.

Very sincerely

C. W. Powell

Ithaca, N. Y.

July 2, 1922.

Mr. Chas. Schwinfuhr

355 Commonwealth Ave.

Boston, Mass.

Dear Sir:

I have been delayed a little in answering your letter of June 14th, for which I am sorry. The Phragma is not S. platycladum which I make a synonym of S. meridense Brid., but belongs in a different group. I make it S. magellanicum Brid. as labeled.

Thanking you for fruit of opinion.

Very truly yours.

A. L. Ry. Adams.

Habitat Belm New York City

July 10, 1922

your letters of June 20 and 21 are here. Many thanks for them and for the explanations that clear up obscurities. By this time you will have received information of the change in my plans necessitated by the breaking down of the Samana and my transfer of passage to the Berengaria which sails on July 11. If you have the desire to write to me while I am abroad, letters addressed to the care of Brown Shipley & Co., London will be forwarded to me wherever I may happen to be.

I hope Ruginow's book on color standards reaches you safely. As you did not refer to it in the letters just received I fear it may have failed to reach you.

The 1904 New Hama list is the latest edition of which I have copies in my laboratory. I will keep this in mind and if there is a late edition you may rest assured that a copy will be secured for your library.

On July 2 (letter so dated) a Le Roy Andrews reports that the Sphagnum from Chungking is *S. magellanicum* Brid. Please revise my unprofessional attempt at identification.

With the best of good wishes

Yours faithfully

Arthur

C. W. Powell
Buller.

Camera lucida and Litz mounting have been forwarded.

Blanch

Blander

BALBOA, C. Z., PANAMA September 23, 1922

My dear Dr Ames:

I am enclosing you a list of specimens which will go forward to you by the next mail, some of them will interest you very much, I think; some of them are not up to my standard but there have been extenuating circumstances. About the middle of July, I extended my garden to four times its then size, and with the supervising of construction and the moving and arranging of plants, in addition to my usual work at the office, I was burdened. Early in August I caught a case of the "Flu" and this put me out of the active running for about two weeks, making one feel like life was a burden, ~~and~~ you do not feel as if you could do anything that you ~~did~~ not have to. Still, I managed to keep up with the flowering plants, making specimens as necessary. The "Flu" here is never fatal, but it certainly does take the sap out of anyone.

The above will also explain why I did not write to you while you were in Europe, as I desired and intended to do.

I will now take up your very much appreciated letters in the order of their writing and make such replies as may be indicated.

London, July 23: Comment on Kew specimen of *Selenip chica*.

The *S. chica* is a much more weedy and softer plant than the *Elleanthus*. It more closely resembles in its texture some of the common garden weeds in my part of the U.S. It is so brittle that the tops all wither and drop when transferred- then die. I am sending you two of them as a plant specimen today. Not one single one of about a dozen survived the transfer, though I believe the

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BALBOA, C. Z., PANAMA 192

roots to be all "O. K." for next year. Now don't be alarmed as to the flower specimens. My man knows where they grow, and I stopped him from bringing me more when I observed this fault of theirs. He is watching for flowers on those in the woods and will bring me tops with flowers when they bloom. The plant grows to be some 10-12 feet tall, ^{with} and branches along the upper part of the stem. As the plant gets old and sun dried, the lower part of the stem becomes very hard. The accumulation of types ^{made at Kew} ~~made~~ is great.

Paris, Aug 7. I rejoice with you over the possession of the 500 type photos and drawings made while at Kew. I do so much desire our American herbariums to be independent of Europe. I hope that your overhauling of the Reichenbach herbarium at Vienna ^{was} ~~will be~~ as prolific and satisfactory. I also hope that your information of the "German cussedness" was exaggerated and that you made Berlin. I believe the Berlin Bot Museum has a large Americana.

Paris, Aug 13. I can positively assure you that Reichenbach did not cover all of Costa Rican species. ^{of Cartago - C.R.} Mr Lankester and myself have talked this over several times. In fact, he has at this time quite a number at Kew ~~unidentified~~ undetermined, left by Mr Rolfe at his death. I would suggest that you get them and make determinations. It will please Mr Lankester and will certainly lead to the sending you of any future discovery he may make. The news of your success does interest me, very, very much. I have long held my head down in shame that the U.S. ~~allowed~~ the herbariums of Europe to so outdistance them. I glory in your work, and you can count on me to the limit to do any and every thing that I can to assist.

BALBOA, C. Z., PANAMA 192

I will now take up general topics and gossip:

During the early part of August I received from Dr Schlechter a microscope with camera lucida attachment, but I have not yet been able to make it work. It is made by Otto Himmler, Berlin. This Schlechter is the result of an order I placed with him some 18 months ago. At that time I was offered by Zeiss a "microscope with an attachment for making drawings" for \$ 40. and I sent the money by return mail to Dr Schlechter to make the purchase and to send it to me. On receipt he went to Zeiss to buy the scope and they told him that since the offer, the price had gone up to \$ 69. He wrote me that he "cussed them out" for such practices and left. Upon advise of the facts from him, I told him to drop the matter and to hold the money to my credit until further advised. It seems that he saw this scope made by Himmler, liked it, and as he was offered it at \$ 40. packed, he took it and had the Berlin Bot Museum to send it to me. It is a beauty, with four eye pieces- 4.8.19. & 14 magnification. It is differently constructed from the Leitz, you so kindly sent me, having a glass ^{slide} and substage mirror nearly twice as large. The eye piece of the camera does not socket over the eyepiece of the scope as does the Leitz, nor is it attached in the same way on the side, but comes directly down on the top of the eyepiece of the scope, without any socket arrangement. I think there is a light leak between the two ^{eye pieces} as being the reason I cannot get to work. As a dissecting scope it is great, and could not be better. I have been able from the beginning to use the Leitz but have not made any creditable pictures yet, from want of materials and the work and sickness as stated in the beginning of this

X I am just paper & pencil as I want them. I am not pleased at point wanted, but the power of pencil never at same time. I can see how of course apart, but as they come together the power of pencil is often disappointed.

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letter. I am sending you one of my efforts at a picture of an *Epidend dendrobifolium*, using x 10 of the Himmler scope; also some others- just to show you how I am doing. I will yet learn its workings thoroughly, and will make some good pictures ~~yet~~. Nor have I given up trying to make the Himmler work, as a camera lucida.

I make you the following comments on the *sp* *Epidendrum fragrans* as requested.

I have already sent you No 30 and its variety, and I am sending today No 208. (note its pseudobulbs and leaves). Refer to No 43 in Kew specimens and you will find flowers with brown spots on sepals and petals. Also in Kew set you will find No 141 with a rose purple lip (very pretty). No 238 (not yet sent you) has purple stripes down the sepals and petals. This has very slender pseudobulb, on a running rhizome, with branches from rhizome, which strike root. It has not yet been reported upon by Dr S. It was sent him on June 3. Then there is a plant with pseudobulbs pear shaped. The flower ~~xx~~ shapes are all practically the same.

Very sincerely yours

C. Powell

Dr S writes me under date of Aug 7. from Koserow(?) that he will return to Berlin the next day and one of his first attentions will be my specimens and that very soon I could expect another list. If so, I can send you some by now mounted & ready.

and from new pseudobulbs

Center of

BALBOA, C. Z., PANAMA September 2, 1922 192

My dear Dr Ames:

As a welcome home, I will send you by the next mail_

No	14	Cycnoches, guttulatum	Schtr	N.S.	plant ^{with flowers attached} specimen
	15	Lycaste, Rowellii	Schtr	N.S.	
	25	Brassavola, nodosa (2 forms)	Lindl		
	71	Gongora, aromatica	Reich.f.		Golden form
	100	Epidendrum, ciliare	Lindl		
	103	Stanhopea, Wardii	Lindl		
	104	Epidendrum, Isthmii	Schtr	N.S.	
	112	Cleistes, rosa (2 forms)	Lindl		
	114	Sobralia, fragrans	Lindl		
	115	Maxillaria, Rousseauae	Schtr		
	116	Epidendrum, gatunense	Schtr	N.S.	
	117	Xylobium, Rowellii	Schtr	N.S.	
	154	Trichopilia, marginata- alba form	Rowell	ast. form.	
	156	Warscewiczella, discolor - form	Rowell	ast. form.	
	162	Habenaria, (patentiloba Ames) avicula	Schtr		
	186	Cycnoches, Rowellii	Schtr	N.S.	
	205	Govenia, Rowellii	Schtr	N.S.	
	208	Epidendrum, fragrans- var Schw	Schtr	N.F.	
	209	Epidendrum, verecundum	Schtr	N.S.	
	212	Habenaria, (petalodes-Lindl, Ames) Warscewiczii	Schtr		
	228	Epidendrum, Rowellii	Schtr	N.S.	
	66	Several varieties of colorings of Trichopilia, marginata.			
		Leaf specimen of Selenipedium, chica.			

Notes: No 15. Specimen of flower in bottle sent some time ~~ago~~ in July in August
 113 112 71 Cannot at this time make plant specimen-have only one plant
 162 Substitute the specimen you have, in the Kew set and retain this for yourself, it being a better one.
 212 This is a much prettier specimen than the one you have.
 209 Regret that cannot send any flowers in pocket, but my plant is small and I have no flowers.

The reason that the packet will not go off in mail on Monday is that the Post Office closes that day as well as Sunday; and I cannot register it. It will follow by the later part of week, as we have several sailings per week. Ordinary mail posted Sunday, goes on the Monday ship.

I sent you a package of specimens on July 2nd, which reached Boston after you had left. I tried to catch you.

Most sincerely yours

C. W. Powell

Holiday I also send you by mail a bottled specimen of a Lycaste, which has not yet been determined by Dr GS, but I am sure it will be L. macrophylla - Lindl. I am sending now because it is in flower & it must be now or not until next year.

BALBOA, C. Z., PANAMA, September 10, 1922, 192

My dear Dr Ames.

I am now feeling "O.K." again and I will refer to matters left out of my letter of last Sunday.

Allow me to say to you how much I enjoyed your article in the last number of The Orchid Review. The points were well taken and convincing.

In specimens sent you, I think you will find No 209 Epidend verecundum, Schtr, to be very near akin to E. strobiliferum, Reich.f. (page 40 of Fac I of Orchidaceae). It appears as if it is a smaller plant and I have not seen it with more than 2 flowers, which are white.

I would suggest that you will send me a package of white mounting sheets, mine are lighter weight than yours. and I think for the heavy specimens ^{Yours} ~~they~~ will hold up better. I only run out of them a few specimens back and used my paper, in order to make you a nice "welcome home" fascicle.

I have about a dozen mounted, awaiting a list from Schlechter, which he wrote me would be sent at once on his return to Berlin about first week in August, so I am now on the look out for it.

My man was out looking after the Selenipedium chica on Thursday and he says that no flowers in sight as yet, will go again about the middle of the week.

Refer to No 29 Epid Hunterii, Schtr, in Kew specimens and make your memorandums from that specimen. I am very fearful that I will not be able to send you one. My plant

my memory is that I sent Kew two stems with
flowers attached and a lot of loose flowers. If
so divide them & make yourself a specimen.
I feel that I have a right to tell you to
do this.

POWELLS' HORTICULTURAL GARDEN
ORCHIDS ONLY
BALBOA, CANAL ZONE, PANAMA

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BALBOA, C. Z., PANAMA 192

died long ago, and I have spent several trips trying to find more, but without avail. One day just before the rainy season, I hired a motor boat for an entire day and scoured Gatun Lake in my efforts. I have also sent my man down there once since. I may yet come across it in some of the other wet places on the Isthmus, but I am fearful that it was from Gatun Lake section only and has become extinct by the dying and falling of the trees. I rather liked the plant and flowers, though they were green. It was fragrant.

In my letter list of specimens sent, correct No 156 to 155. This refers to Warscewiczella discolor- form. This was a typewriter error.

I am enclosing you a flower specimen of a Hybenaria, of which is now in flower and which I will make proper specimens; is this the small flower which was in Kew spec No 162, Kindly advise me.

Very sincerely yours

CW Powell

P.S. Another Epid ^{shape} fragrant, which I omitted in my memo (in my last letter) is No 152 in Kew Specimens

BALBOA, C. Z., PANAMA Sept't 17, 1922 192

My dear Dr Ames:

I am in receipt a few moments ago of your very ~~much~~ much esteemed letter from Vienna. I not only was glad to hear from you, but I was particularly interested in what you say about the much vaunted Reichenbach herbarium- which had been a deterrent and a bugbear to the Botanists (Orchidists) for so many years. Just to think of the hesitancy and delays in making determinations, ^{of} because this pig headed man's action, ~~maximizes~~ makes one say cuss words. Then to find that his boasted superiority was non existant. Well, this is in consonance with other German boasts which have been exploded by the war.

I am sending you herewith 2 photos of Stanhopea Wardii and of Cynoches Powellii, omitted from my letter, they having been misplaced incident to my recent move.

I also enclose you 3 Habenaria flowers, marked B. C. D, (kindly tell me if either of the two smaller ones are the small flowers in No 162 of Kew specimens. I sent you a small flower in my last letter with the same enquiry- call that one A. I do not diagnose either one of the four as being ~~the same as~~ No 212, H. petalodes, (Lindl) Ames. Am I correct?. I know neither are No 162 H. patentiloba, Ames, (avicula, Schtr). Sorry to trouble you with these enquiries, but I am anxious to get you a specimen of H. petalodes, v micrantha, Reich.f. and will yet do so, with your help in identifying it. Specimens of all of these are made and held up.

I figure that you received my last lot of specimens yesterday.

Sincerely yours

C. W. Powell

North Easton, Mass. September 22, 1922.

My dear Mr. Powell:

The specimens listed in your letter dated September 2d have not yet arrived. Undoubtedly they will come in a few days. I looked through the collection sent July 2d and found the specimens most interesting. I noted a *Masdevallia* which Schlechter has determined to be a new species. This specimen is not mentioned in any of your recent letters and is not in your July 2d list. Your notes describe exactly a colored drawing in *Hort. Reichenbach* which is called *Masdevallia Livingstonii*. In habit your plant is an exact match. Can it be that your specimen represents the long doubtful species and not a new one? I hoped to settle the *Masdevallia* question when I went to Vienna. I found that Kraerzlin had all of this genus on loan for his monograph with the exception of a few sketches. Among the sketches I found the drawing referred to. It is a carefully colored representation. I made a photograph of it. This has not yet been developed. I will send you a print if the negative comes through all right.

When in Berlin I differed from Schlechter with regard to his *Habenaria Farsceviczii* n. sp. As I remember it, he had from you the large flowered form which I take to be *H. ~~XXXXX~~ petalodes* Lindl. He believed this to be the var. *micrantha* of Reichenbach. As I have told you before the same flowered thing of which you have just sent me a single flower is the Reichenbach variety. I enclose a photograph from Reichenbach's specimen. If you will note the measurements called for by the scale you will, I believe, agree with me and not with Schlechter. If Schlechter is justified in recognizing the large flowered thing as new, then there are two new species in hand. All this is very interesting.

While I was abroad[&] since my return home I failed to keep copies of my letters to you. Consequently I do not remember to have given you any information about the progress Schlechter has made with the preparation of a paper devoted to your collections sent to him for identification. My impression is that nothing has been done toward the preparation of the manuscript. Schlechter was non-committal when I questioned him. I asked him to hasten the completion of identifications for you, and to this he replied that he had already sent you a complete list up to the time of my request; that you must now be in possession of it. He pointed out several specimens which he said were impossible because you had only sent flowers; incomplete specimens, and that he could not attempt to determine orchids from flowers alone. From information you had given him he told me that Rolfe had assured you that flowers would be sufficient. This he regarded as incomprehensible and he wondered what on earth Rolfe could have been thinking of.

I am glad you enjoyed my article in the Orchid Review. I have just sent you a copy for your collection of my papers. From such articles you will see that I try to study orchids from more than one point of view.

An additional supply of herbarium paper has been sent to you. I wish you would use this for my specimens as much as possible as I like to keep my herbarium uniform.

If there is anything you want from me, you have my address!

Yours faithfully,

A

BALBOA, C. Z., PANAMA September 25, 1922 192

My Dear Dr Ames:

This will introduce to you (by letter) my good friend
Mr C. H. Lankester, of " Las Conchas", Cartago, Costa Rica.

Mr Lankester wishes to take up with you the subject of
Costa Rican Orchids, with which he is well familiar. He has a number
of specimens now at Kew unidentified or undetermined, which he would
like to have you procure and determine for him. Also he wishes to send
to you anything new which he may discover for determination.

Will you kindly take the matter up with him, upon the
receipt of his letter, which will follow at an early date.

Very sincerely yours

C. W. Powell

Dr Oakes Ames,
Director Harvard Botanical Gardens
No 355 Commonwealth Ave
Boston, Mass.

Dear Dr Ames

This is a copy of a letter sent to Mr Lankester,
which I hope & believe will not only turn you
up some desirable materials, but furnish the
means of procuring much information re Costa
Rican Orchids when desired.

Sincerely

Powell

BALBOA, C. Z., PANAMA September 25, 1922 192

My Dear Dr Ames:

This will introduce to you (by letter) my good friend
Mr C. H. Lankester, of " Las Concavas", Cartago, Costa Rica.

Mr Lankester wishes to take up with you the subject of
Costa Rican Orchids, with which he is well familiar. He has a number
of specimens now at Kew unidentified or undetermined, which he would
like to have you procure and determine for him. Also he wishes to send
to you anything new which he may discover for determination.

Will you kindly take the matter up with him, upon the
receipt of his letter, which will follow at an early date.

Very sincerely yours

C. W. Powell

Dr Oakes Ames,
Director Harvard Botanical Gardens
No 355 Commonwealth Ave
Boston, Mass.

North Easton, Mass.

September 27, 1922.

My dear Mr. Powell:

Your letter of the 17th is at hand. The second package of specimens has arrived in good condition. I have examined the *Eubeneria* flowers. My notes follow:

C is probably typical *H. petalodes* Lindl. var *micrantha* Reichb.f. B & D are probably larger flowered forms of the variety. 112 of the ^{new set} ~~set~~ has what I take as true *H. Petalodes* Lindl. (sepals 8 mm. long when dry) and what I take to be *H. pet. var. micrantha* (sepals 6 mm. long when dry) mingled in the same pocket. It would seem from material at hand that every intergrade in size between extremes may be expected, and that only a single species is before us.

I have just been studying *Cleistes rosea* and having a plate made from your material. It would seem that your specimens match closely the Guiana plant collected by Schomburgk on which Lindley based his conception of this interesting and very rare species.

I find that the *Masdevallia* I mentioned in my last letter is Schlechter's *Scaphosepalum panamense*. Although I have not made analyses it seems to me that the specimen in question is *M. Livingstoneana* Reichb.f. I do not see how Schlechter runs this into *Scaphosepalum*.

This letter must be brief, although there are many things I want to take up, as the duties of home-coming are very exacting. College work has begun.

Yours faithfully,

Arthur Cronquist

BALBOA, C. Z., PANAMA September 27, 1922

My dear Dr Ames:

I am today in receipt of your valued letters from Paris Aug 31, London Sep 2 and home Sep 16 & 18 — a wealth of good reading, which I have enjoyed to the fullest. Many thanks for your thoughtfulness in sending me so much interesting data.

The first thing I wish to take up is the subject of the "Type" labels. I have been laboring under the idea that you wished them on all specimens when your specimen and Dr Schlechter's were taken from the identical plant. I now understand that you wish them used only on NEW SPECIES determined by Dr Schlechter, and then only when the same plant furnishes the specimens ^{for both of you}. As I have only used them on one lot of specimens— that of July 2— not much harm has been done, and it can be readily corrected. Will you kindly remove ^{them} ~~it~~ from all in that lot except the following:

No 51 Lockhartia, aurantiaca — No 126 Scaphoglottis, dolichophylla — No 214 Maxillaria, pubilabia — No 225 Hexadesmia, Powellii — No 232 Stellis, Isthmi — No 234 Stellis, praemosa. I will be careful in the future over this matter, and I regret my not fully comprehending the trend of your wishes. Kindly place the "Type" label on the following heretofore sent to you and not labeled: No 14 Cynoches, guttulatum — No 79 Rodriguezia, secunda, v panamensis — No 91 Pleurothallis, verecunda — No 172 Pleurothallis, diuturna — No 182 Pleurothallis, rhodoglossa. The rigid restriction reduces the number of labels to a very small number for the specimens already sent. There will be others, ^{one} which will be used "Type" as the specimens are prepared.

I will send you another package of specimens in a few days— some interesting ones.

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BALBOA, C. Z., PANAMA _____ 192

Your suggestion that I pass the word on to Lankester in Costa Rica has already been acted upon- see my letter to you introducing him, of date Sep. 25th. You will hear from him as soon as he receives it. We pass letters of information weekly, and I have heretofore written him concerning this. *I also gave him full data of your work in Europe.*

As to the Leitz microscope, I will retain it until I get the Himmler scope to work. I do not know whether I can do so or not, up to the writing it "went". If I ever get the Himmler to go as a Camera Lucida, then you can instruct me to send the Leitz on to some other of your correspondents who may be in need, as I was, when you came to my assistance. I was not expecting a scope from Schlechter, as I had countermanded the order ~~early~~ a year back, and its coming was a surprise to me. I had told him to use this money, when he was ready, for printing the list of my Orchids, and I considered it so settled.

I am simply charmed and rejoice that your trip was such an overwhelming success. America must wake up, and procure the Orchid materials from South America. Never again I trust, will we hesitate and first ask ~~xxx~~ the Herbariums of Europe to determine for us.

This brings me to ~~xxx~~ ask you a very pertinent question: Is it possible for me to discontinue sending specimens to Schlechter- honorably? I hope it is. Consider this carefully and give me your views. I wish to break away from "foreign entanglements". I

have yet many plants from which I have never procured specimens, *(have not flowered)*
many will be new species. He has yet in his hands undetermined

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BALBOA, C. Z., PANAMA _____ 192

about 20⁻²⁵, after deducting the list received from him today, a copy of which will be enclosed you in this letter. Then again, if I should break with him, would he not pigeon hole my determinations and never publish them.?

I will be delighted to receive the photographs as suggested in your letter, & they will enhance my herbarium very much in interest. My herbarium is a duplicate of the one you are now receiving. I make two specimens at the same time, one for you and one for me, ~~this~~ for those which have been heretofore determined. For the new ~~one~~, as they flower, I am making three specimens - Dr S, you & me where possible; if only two can be made, then one to Dr S and the other to you, I holding the plant for a future flowering, to procure my specimen. Rarely I can make only one specimen, then ofcourse it goes to Dr S for determination.

I have reserved my comments on the most important part of your letter until the last:- In yours of the 16th you use the expression " when I come to Panama ". How the thought of your coming thrills me. What a desideratum. How I will revel in converse with you on Orchid matters. Are you really considering such a trip ?. I thank you most heartily for the counterfeit presentment of yourself and Mrs Ames. These I will file in my herbarium as a part of it, in token of my appreciation of your many acts of helpful kindness.

Most sincerely yours

C. W. Powell

Some notes, made while you were away, to enclose in my first ~~letter~~ letter.

BALBOA, C. Z., PANAMA _____ 192

Would it be asking too much of you, if I were to request that *you* have one of your assistants make new labels (using those you had printed for me) for all of the earlier specimens sent you and paste over the crude, bull faced, labels which are now on them, wholly in typewriter. Your labels are so much neater, and present a far more attractive appearance on the sheets. If you *have* none of the labels, I will send you some of those I have.

I am sending you another of my attempts at using the Camera Lucida. It is from a dried and pressed Habenaria. *Am* I improving? *Right now fresh specimens are not plentiful, too much rain.*

I am enclosing you additional to file with your specimen — No 7. Camaridium affine, Schtr. I remember that your specimen lacked just this to make it good.

My new garden is beginning to look up and present an attractive appearance. The old one was so packed full of plants that I could not properly look after them, and ~~as~~ for a visitor to give a critical examination was impossible. I lost many desirable plants, because I could not get among them and see that they needed attention. Now I have plenty of room.

In some of the specimens sent I do not fasten down a part of the specimen— this is in order that you may dispose of it as you may deem the best way. I mention this that you may know it is not from a sloppy handling.

Regarding Epidend fragrans: See a note by R.A. Rolfe on Epid
confusum, page 197 Vol VII of Orchid Review for July 1899. In
this he says that E. confusum is ^{an} E. fragrans form.
^

I am enclosing you an advertisement of Ivorine labels. I would
like to get me about 300 of the round ones with wire, to use exclusi-
vely on my plants from which ^{Herb} ~~one~~ specimen is taken. The
tropical weather quickly washes off the marks on the wooden ones
and I am compelled to carry around with me a chemical pencil and
renew any which are fading. This is a nuisance. Do you know any
dealer who sells them or something similar or as good. You will
notice that the advertisement is 23 years old.

POWELLS' HORTICULTURAL GARDEN

ORCHIDS ONLY

BALBOA, CANAL ZONE, PANAMA

BALBOA, C. Z., PANAMA September 27, 1922 192

Copy of list of determinations received from Dr Schlechter today:

No 19	Coryanthes, Hunterianum	Schtr	N.S.
156	Coryanthes, Powellii	Schtr	N.S.
83	Encyclia, Powellii	Schtr	N.S.
84	Encyclia, chiriquensis	Schtr	N.S.
155	Warscewiczella, discolor	Reich.f. (a fine var. Schtr)	
157	Oncidium, fulgens	Schtr	N.S.
236	Pleurothallis, Wagneri	Schtr	
237	Pleurothallis, tribuloides	Lindl	
208	Epidendrum, sp	flowers mutilated in mail and lost parts	
239	Epidendrum, Cerstedii	Reich.f.	
240	Epidendrum, teres	Reich.f.	
241	Leucochyle, hymenantha	Reich.f.	
242	Epidendrum, myodes	Reich.f.	
243	Liparis, elata	Lindl	
249	Epidendrum, latilabre	Lindl	

Notes:

You will see that I have changed some of my former determinations. The two Encyclias No 83 ~~XXXX~~ ^E profusum & No 84 E. aspera of my former list, are new species. See above for new names given. Kindly correct your spec sheets.

North Easton, Mass.

September 28th, 1922.

My dear Mr. Powell:

I hasten to enclose a very poor, but extremely interesting photograph of the first bit of evidence I have secured as to the identity of the Panama *Masdevallia* referred to as *Masdevallia Livingstoniana* by Reichenbach. I have not yet succeeded in deciphering the horrible, yet characteristic writing of the man, but I think there is no doubt as to the water color drawing being of the Poezl specimen from Panama. Poezl 74 and Panama are decipherable words in the mess. As I told you in an earlier letter, the actual specimen must be in the hands of Fritz Kraenzlin, (Schlechter's dearest friend!) as a temporary loan. That is why my information on this subject is still inadequate. From the photograph, if you examine it with a pocket lens, you will be able to tell whether or not the Poezl plant matches your *Scaphosepalum panamense* Schltr. If it does not, then you still have something to look for in the wilds of Panama. The sepals are yellowish with a maroon eye at the base of each.

I am simply overwhelmed with the task of making ready for the herbarium the material I brought back with me. I estimate now that I have in hand as a result of two month's work in Europe nearly three thousand specimens. Three hundred specimens represent duplicates of Lehmann's Colombian orchids presented to me by Kew. Photographs of types exceed the number I gave you by over three hundred, all tropical American!! I will send you some of the good ones when I get time to breathe.

Yours faithfully,

Charles C. Ames

North Easton, Mass.

September 28th, 1922.

My dear Mr. Powell:

To make the little photograph of *Masdevallia Livingstoneana* more interesting to you I enclose the results of my attack on the manuscript.

(Clausae porrectae) Caespitosa~~ae~~ foliis spathulato-retusiusculis obtusato-emarginatis, pedunculis nonnullis, perigonii cyathae elongatis sepalis libero superiore~~m~~ lineariligulato, sepalis inf. liberis triangulo deflexis— flores ochracei, sep. dorsali lib. trurneo, sep. lat. obscure oculatis, apice brunneis ceterum albidis.

It was not a lucky idea to devote such an insignificant Orchid to such a hero as was the lamented Livingstone. Yet it would be a sacrilege to take away what was given him. I therefore accept W. Poezl's desire

Here comes the drawing

I should describe under this very name his plant. After all the dark purplish brown eye like spots at the base of the lateral sepals look nice enough PANAMA* and contrast for the yellow green? yellow and brown color of the flowers. It was discovered in Panama by Mr. Poezl and sold the other day at a sale in Mr. Steven's rooms.

Poezl 74 Masdevallia Livingstonei

*Apparently this word was on the sheet and Reichenbach simply wrote his rambling remarks about it.

Yours faithfully,

Arthur C. Smith

adheres to technical methods that we abandoned several years ago. In short, he labors under self-imposed difficulties at the expense of posterity. He depends on the single-lens dissecting microscope which with highest possible powers is unfit for the study of the definitive characters of *Stelis*. Consequently some of his drawings are crude and inaccurate. As he relies on his drawings to a larger extent than I should do, his descriptions are often misleading. Neither Lindley nor Reichenbach f. gave very convincing evidence of an intimate knowledge of what Ridley has termed "the real genus *Stelis*." But there is no excuse for Schlechter, at a time when optical apparatus has come into use that makes searching studies possible, to follow in the footsteps of men who were laboring under the difficulties of their period. When in Berlin, I remarked to Schlechter that the incoming of the binocular dissecting microscopes had at last opened up the genus *Stelis* for critical study. He replied that for him the simple microscope was ample. His analyses, I am afraid, do not substantiate his claim.

As Reichenbach failed to describe the lip and petals of *Masdevallia Livingstoniana* I am beginning to suspect that he never saw living material of the species. He depended on the water color drawing that may have been made in Panama, hoping for material to be obtainable from the specimens that were sold in Stevens suction-room. Perhaps the plants that were sold never reached the flowering stage? Perhaps the water-color drawing is the type. Let us await Kraenzlin's monograph. That may put us in possession of some interesting information.

Yours faithfully,

Oakes Ames

BALBOA, C. Z., PANAMA October 4, 1922 192

My dear Dr Ames:

I am sending you herewith 3 Habenaria flowers marked E - F - G -. Will you kindly examine them and advise me if any are the small flower, H petalodes v micrantha of Reich. ? Will you also tell me ^{which} ~~if~~ they are the same ^{and} ~~in~~ any of the letters. ^{A-E} That is to say are any of the letters A- G representing the same ^{species, all are from different localities and} ~~flower?~~ ~~fixxxkindly~~ (All are from many miles from whence No 212 was found. (212 H Petalodes (Lindl) Ames).

I have checked up my specimens sent to Dr Schlechter and I am sending you a memo of the result. It is astonishing how few duplicate flowers of same species ^{were} ~~sent~~ under different numbers, some 6-8 covering the total. This shows how carefully I compare them before determining to send them on. When you remember that my collection embraces some 4000 plants I think this a good record.

The missing 16 undetermined numbers have been sent to Dr Schlechter with request that he hurry them up.

In a few days I will send you another package, some of which will prove quite interesting, I feel sure. I have not felt too "chippy" the past few days; then the usual monthly reports of our station have had to be made and sent in, which has kept me busy.

The package of mounting paper arrived today. Will use it on ~~xxx~~ specimens for you when I mount them in the future. I have had to use my paper lately because I was out of yours, as I wrote you.

Very sincerely yours

CW Powell

You returned favor of Sep 22 & to hand. Please reply to it when I write sending specimens. This letter is only to send the Habenarias.

BALBOA, C. Z., PANAMA _____ 192

As a piece of statistical information the following is sent you:

Total number of species from which specimens have been made, ~~254~~

254

Of which there has not been sent Dr Schlechter for determina-

nation from various reasons, plants died, duplicates, etc

31

Total sent him, *no duplicates*

223

He has determined to date

207

~~in~~ his hands, undetermined

16

Of the above 31 not sent him, 9 will be yet sent, as plants are
living and will show flower in season.

Resumé

Determined as above

207

Undetermined in his hands

16

To be sent of the 31 above

9

plants in garden, different from above, not
yet flowered- conservatively estimated as

25

Total of species of Panama plants
in garden

257

NORTH EASTON, MASS.

October 6, 1922.

My dear Mr. Powell:

Your communication of September 28th, has just reached me. I am delighted to learn from you that Mr. Lankester will forward material to me for determination. You may be sure that everything will be done to give him names promptly and that any new species will be published within thirty days or so of recognition. I had already written to Mr. Lankester asking to be given an opportunity to study his collections. Now that I know from your letter that he has contemplated sending his things to me, this day begins with plenty of sunshine even though heavy clouds obscure the sky.

Perhaps you can give Mr. Lankester some of the benefits of your experience with the preparation of herbarium specimens. I suggest this because when I was at Kew I noted that his specimens were often too fragmentary to be useful. Flowers alone are only of use for the identification of well known and common orchids. For scientific investigations it is necessary, as you now realize, for the systematist to have an abundance of material represented by complete specimens.

There must be more species of *Stelis* within your reach than you have so far secured. It would be well to give this puzzling group intensive attention. I am sorry to tell you that Schlechter has not helped matters in his work on the Central American species of this group. While it is true that many of his new species will probably withstand the acid test of time, he has made faulty analyses and published inadequate descriptions. In studying the genus, if I understood him aright, he still

NIGHT

BALBOA, C. Z., PANAMA Oct 8, 1922 192

Dear Dr Ames:

I wrote my letter and made up your package this afternoon. The New York mail arrived here at 7 P.M. and I received your letter of Sep 27. After reading it over carefully and considering it with specimens A. B. C. D. E of *Habenaria* before me, I have decided to send on to you the specimens for your ~~inspection~~ ^{determination.} F & G are in press drying and cannot be now sent. *Habenaria* are not plentiful and these represent the results of my mans hunt. You will find one here and another at some other location. He says never in colonies. (f) You will observe that the flowers of A and C are similar but the plants and the inflorescence are different. B and D are also different, as I take it, from A and C; and, they are also different from each other in plant parts as well as in style of inflorescence. E is again different from all of the others, in having a three lobed pointed lip, and in style of inflorescence.

I have ^a duplicate specimen of A and E, but none of B. C. D. So I will have to rely on you to identify in some future time these ^{others} for me, that I may make specimens for my herbarium. No more *Habenaria* specimens will be sent to Dr Schlechter, unless you so decide and instruct me, none of these have been sent him. I will give them Numbers in my herbarium after I have heard from you regarding them. At this time they will be known as lettered.

Very sincerely yours

C. W. Powell

(f) Spec N° 212 *H. Warscewiczii* - Schott, was found by me on side of rocky hills on shore of Pacific mainland facing Taboga Island. I found it in a Colony of about 8-10 plants. All of these others were found in foot hills East of Panama City.

Will send you labels if desired, when advised.

They are in the package

BALBOA, C. Z., PANAMA _____ 192

In your letter of Sep 22nd your reference to a Masdevallia in lot of specimens sent you on July 2, has provoked a lively interest. I am supposing that you refer to No 223 Scaphosepalum, panamense- Behlechter. When I sent this on to Dr S, I called it ~~A~~ "Masdevallia" as my tentative diagnosis; but he determined it as S. panamense; and I, being but a novice, accepted his ipse dixit without a word. The M. Livingstoneana, Reich.f. has been a desideratum by me since I have been collecting Orchids. I have never yet seen a figuration of plant or flower, and the only description of the flower I have seen is that at page 119, May 1918, Orchid Review, written by R.A.R. I did not think of M. Livingstoneana when I sent this ^{(No 223) to Dr S.} plant on, because I had always thought that my No 78 of Kew specimens was. If you ~~it~~ will remember, sometime back I wrote you regarding No 78 Kew spec, and you wrote me that it was missing. I sent ~~it~~ ^{No 78} to Mr R on Apr 7 1919, consisting of a number of flowers, only reserving one flower as a case specimen. At that time I had the suspicion that it might be M. Livingstoneana. I am sending you herewith this reserved flower. I cannot recall the description sent Mr Rolfe nor can I find my copy of it. This plant ^{No 78} was found at approx sea level in the foot hills east of the City of Panama and has never been found since, that I have any knowledge of. It was a medium size plant and flowered freely; but died soon after, I think from too much shade and water. I recall how proudly I sent it on to R.A.R., believing that I had the long lost. He never replied to me "yea or nay" and thus the dream went to pieces, leaving me only this one lone flower relic.

I do not recall that ^{The} ~~this~~ flower, had dark violet sepals ^{and} ~~and~~ tails as stated in O.R. article, ^{if I} ~~if~~ would surely remember it; though memory in the Tropics is treacherous and they might have.

most sincerely yours
C. Powell

BALBOA, C. Z., PANAMA October 8, 1922 192

My dear Dr Ames:

Tomorrow I will send you the following specimens-

No 83	Encyclia, Powellii	Schtr	N.S.
99	Epidendrum, prismatocarpum - <i>form</i>	Reich.f.	
127	Maxillaria, alba, var <i>additional</i>	Lindl	
157	Oncidium, fulgens	Schtr	N.S.
183	Epidendrum, porphyrophyllum	Schtr	N.S.
210	Camaridium, atachuites	Schtr	N.S.
211	Scaphoglottis, Behri	Reich.f.	
213	Peristeria, elata	Hook	
217	Epidendrum, nocturnum	Jacq	
237	Pleurothallis, tribuloides	Lindl	
241	Leucohyle, hymenantha	Reich.f.	
242	Epidendrum, miodos	Reich.f.	
243	Liparis, elata	Lindl	
249	Epidendrum, latilabre	Lindl	

Notes:

- 127 Transfer the Maxillaria, alba to the regular specimen you now have, this will improve it.
- 99 Schlechter determined this and 101 both as Epid prismatocarpum. I take exception. No 99 has not the wings to the column that 101 has, and the col of 99 is freckled on top with purple dots. This looks more like it was a form of Epid brassavola. #77
- 183 I am sorry that I cannot send you more flowers. My plant is very small, consisting of two running stems, *about an inch and a half long.*

I am constantly examining the Habenaria specimens A _ G and I must confess that I cannot make heads or tails of them. You know that I have not a flower of either of the old KEW set (No 162) and I am going entirely upon my memory.

By the way look at Kew specimen No 166 and you will find a white Habenaria which I found by the road side on one of my trips to Chiriqui. I have no specimen of this either. The plant died in shipping it down here.

Very many thanks for the Reich.f. photo of H. petaloides & of v micrantha. *Reich.f.* *Linde*

The photo of Mrs Ames in her "bit to beat the German" has a counterpart in my daughter, who is here with me; she took an intensive course of study and training in Red Cross nursing and procured a certificate of efficiency. She was expecting to go to France but the Armistice put an end to her ambition. I have no son.

NORTH EASTON, Mass.

October 10th, 1922.

My dear Mr. Powell:

Your good letter of the twenty-seventh September has just been read. Your understanding of the use to be made of "type labels" is now correct. I will make the changes you suggest and at the same time substitute the new herbarium label for the old. I believe I have on hand enough for the purpose.

The additional material of your no. 47, *Camaridium affine* Schltr., is a delight. This will be added to the sheet at once.

Your camera-lucida drawing of *Habenaria petalodes* var. is most promising. As a rule you ought to secure best results from fresh material. It is not necessary to flatten out the flowers as you did with the *Epidendrum*. Try to get a symmetrical arrangement and then draw the flower carefully up to the capacity of the camera-lucida. Then fill in surface details, shading of calli etc. by observation through a medium powered lens. A binocular dissecting microscope is excellent for finishing up a drawing. We use one constantly as it reveals the structure of minute details in pleasant relief and brings out things that the one-eyed instruments seem unable to accent.

I will give the matter of permanent plant labels my best attention and send you a supply next week.

Epidendrum confusum Rolfe = *Epidendrum pentotis* Reichb.f. Fide Rolfe! Schlechter thinks that the Central American species usually referred to *E. pentotis* = *Epidendrum Petrovianum* Schltr. I am not yet decided in my own mind as to the final treatment of this matter.

I have noted the change in the names of

Oct. 10, 1922

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numbers 23 & 24. When I was in Berlin, Schlechter showed me the specimen he had determined to be *Epidendrum asperum* Lindl. I assured him that he was well off the track; that from my studies of the New Set I was convinced that your 24 was new. Then we came to 23 determined as *Epidendrum profusum* Rolfe. I told him that his determination was wrong and that from my present knowledge it was a new species. So much for that little episode. Apparently you have profited through my trip to Berlin.

I move to winter quarters on Monday next. Then for constructive work. Since my return home from Europe my orchid work has been chiefly the preparation for the herbarium of the wonderful collections I made in England, France, Austria and Berlin.

I really have Panama in my mental list of places to be visited soon. There is no reason why I should not drop down your way this winter as I have from mid-February to April free from classes.

In your letter of the twenty-seventh, you ask what you characterize as a very pertinent question. Let me answer it in a straightforward manner, not as a question of the relationship that exists between you and Schlechter but as a question that has to do with any collector. Unless you are bound by some very delicate agreement you have a perfect right to send your material anywhere you wish to send it. Or you can send any part of it to authorities who may be specializing in any part. For example, knowing that Kraenzli is monographing *Mastdevallia* and *Dichaea* and other genera for the Pflanzenreich you might be prompted to send him material of these genera to benefit by the conclusions of a monograph. Or if you knew that I was working intensively among the

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species of Epidendrum you might wish to send your specimens of that genus to me. Or you might ~~if~~ decide to put your herbarium specimens on sale to obtain funds for the development of your garden. In that case you would be free to send material to the institution that would pay the highest rate per specimen. In the final analysis you are at liberty to do what you wish. I quite understand your desire to keep your specimens in the United States. I almost wrot when I discovered how much Central American material is going to Germany at a time when I have the preparation of a floor in hand for the United States National Museum. Why not take this matter up with Dr. Standley or Mr. Maxon, of the United States National Museum. I am sure that you could rely on their decision. Whatever you do I must impress upon you the fact that it was with deep regret that I learned of the unfortunate circumstances that turned you away from our institutions, first to Kew and then to Schlechter. It seemed as though fate was working against us. Notwithstanding my friendly relations with Schlechter, nobody would receive with greater joy the news that you had decided to give Americans an opportunity to keep America free from Germany in the trade of Panama orchids. Although science is admittedly international I am convinced that supremacy in science is national. It pains me to think that we should join with German colonists, or sojourners to swell the stream of material that goes to Germany. I feel stronger than ever about this since my visit to Berlin. I realize that I have expressed myself very clumsily in answering your question, but I have restrained myself purposely because the desire to go deep had to be kept in check.

Yours faithfully,

Oakes Ames

NORTH EASTON, Mass.

October 11th, 1882.

My dear Mr. Powell:

To supplement the work you are doing we should have somebody collecting all of the time. Every flowering orchid should be pressed, properly labelled as to locality, date etc., and when dry forwarded at once to the herbarium for study. Plants that seem worthy of note, but which lack flowers, should be submitted to you for cultivation. There must be some native or resident of Panama who would enjoy this means of earning money, provided you were willing to give instruction as to proper treatment of specimens and to furnish information as to the best methods to adopt in preparing orchids for the herbarium. If the right man could be found we might make two propositions: either a flat monthly rate of payment, or payment on a specimen basis. The monthly wage might be seventy-five or one hundred dollars. The payment per specimen might range from fifteen to twenty cents, five examples of each species to be made (when possible) and each example to count as one specimen.

You have mentioned in your letters a native who helps you with your work. Perhaps this man might be trained to make specimens. He could carry a strap press and driers into the field when he goes orchid hunting for you and fill the press with carefully arranged and properly selected specimens from every flowering orchid encountered. I am sure that a brief course of training would pay us ample dividends in specimens. This man might have a boy to help him at a fair wage. Some of Merrill's best collectors in the Philippines were natives. Ramos, for example, turned out to be a star.

Oct. 11th, 1922.

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Please consider this proposition. If it meets with your approval it should be put in operation at once!

Although we cannot hope to make specimens that will compare for beauty and excellence with those prepared from the Garden, the scientific value of material from the woods will be equally great to that obtained from cultivated plants, and will furnish an abundance of examples from which intensive comparative studies will be made possible.

If you finally approve of my plan, and see an opportunity to send somebody afield on receipt of this letter, cable me the word "Approved" and I will send one hundred dollars to cover the first month. If seventy-five dollars will prove sufficient, cable me the word "Approved". If the specimen basis of payment is more appealing, cable me the word "Specimen" and I will send fifty dollars as an advance payment and promise to pay twenty-cents per specimen when collections arrive. By specimen, speaking botanically, enough material to fill an herbarium sheet comfortably is understood.

We cannot hope to obtain a satisfactory archidological survey of any part of Panama until some such plan as I have outlined is put in operation.

If you decide to co-operate with me on this more extensive basis, progress would be rapid and there should be no objection in the way of a change in your present relations with Schlechter. It is improbable that Schlechter would ever make a similar offer to mine. Consequently there is no reason why you should limit your survey to meet his capacity for co-operation.

I have made my proposals with a complete understanding of what is necessary for a scientific investigation of a regional flora. Substantial progress is only possible when an

Oct. 11th, 1922

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abundance of specimens is available. The Garden cannot compete with field-collections for necessary quantity.

In your letter of September 27th, you refer to the probability of Schlechter placing your material in pigeon-holes to be entirely neglected if you discontinue your shipments of specimens. It is really improbable that he would do such a thing. On the other hand you would be justified in writing to him that no more material will be set aside for him until he has published the numerous species that he has detected among your orchids. The delay in publications of your new species has three very unfortunate aspects:

1. It leaves us in doubt as to what Schlechter will finally do with your specimens;
 - a. Because herbarium names are often simply for convenience and do not express finality of interpretation (cf. under 3. below).
 - b. Because new species that live too long are often described from other material and die in the herbarium.
 - or because Schlechter has made revisions that keep you in uncertainty as to the validity of any of his determinations.
2. It places your collection in the realm of uncertainty as to the final worth of your types.
3. It prevents me from making a complete flora of Central America.

Put this situation squarely before Schlechter. He promised to be prompt with determinations. Has he lived up to his promise. Has he, for example, given you lists of names sent

Oct. 11th, 1922.

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two weeks after receipt of specimens? Has he published a single species of your collection since your association with him was formed?

At the present time Schlechter is receiving material from several collectors in Costa Rica. He has correspondents in Brazil, Mexico and elsewhere. He is making efforts to turn all material, from every possible source, in the direction of Berlin. It is evident that he cannot handle all of this material with scientific accuracy and with critical vision. Nor can he promise promptness to everybody and at the same time do that type of work that rests on a substantial basis. But as his chief aim is to monopolize the orchid flora of tropical America, he makes the end justify the means.

Americans in tropical countries, and Englishmen for that matter, should be stimulated to make every effort toward the accumulation of material in American herbaria. Every sample should be tenderly preserved and sent as soon as possible to the United States. The true aspect of the case should be outlined in detail as an additional stimulus. The competitive spirit should be roused.

Fortunately the attention of our botanical institutions is being concentrated on Central and South America. Killip and Pennell are at present in northern Colombia. Dr. Standley has recently returned with rich collections from Salvador and Guatemala. Maxon and Rose have trips in prospect. The New York Botanical Garden is busy in the West Indies. The Mulford Expedition that returned last spring was fairly successful in Bolivia and northern Brazil. From these expeditions the orchids come to me.

For the present New on account of the death of Polfe is out of the orchid game. The young man who is to take up the

Oct. 11th, 1922.

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work where Rolfe left off will need several years of hard study to get into the game. Paris has no orchidologist to take the place of Finet. This ¹statement should give you a very clear outlook on the situation that confronts us. It should help you to make your plans for future action.

I cannot close this too lengthy letter without an attempt to impress on you the importance of field collections! It is from these that rapid and telling progress is made, in attempts to size up a flora and to accumulate the materials that make exhaustive floristic work possible. Field collections also supply the duplicates that are necessary to bring from other institutions, through exchanges, the materials that swell herbaria and make comparisons and checks possible. If you enter into the field-work undertaking, we can designate the collections as *Orchidaceae Powelliana* and put the actual collectors names in the proper place on the printed label.

Your reaction to this letter will be awaited with impatience and hope.

Yours faithfully,

Oakes Ames.

BALBOA, C. Z., PANAMA October 15, 1922 192

My dear Dr Ames:

This is just a hurried letter to tell you that I will tomorrow morning mail you in a jar, properly preserved, a rara avis - a female flower of *Cynoches Warscewiczii* (No 165) It is from the same plant that your mail specimen was from. It opened out yesterday and as it was the first one I ever saw, and I believe ~~that it is~~ is unknown in the Herb of Europe, I hasten to get it to you. There was only one flower on the stem, all of which I cut on the flower.

Find also 3 pockets with loose flowers of

No 115 *Maxillaria Rousseauae*, Schtr

214 " *pubilabia*, Schtr

241 *Leucohyle hymenantha*, Reich.f. All of the extra flowers I have.

I have much to write you and will do so in a few days.

Sincerely yours

C. W. Powell

Boston, Mass., October 17th. 1922.

My dear Mr. Powell:

Your letter of October 4th, is at hand. Many thanks for the additional material of *Habenaria petalodes* and for your remarks regarding its origin. It would be well to make complete specimens freely of this puzzling thing as it is quite impossible to study its peculiarities from incomplete plants. I admit myself baffled by the variation exhibited. It is true that there may be several species under observation, but knowing *Habenaria* as I do, I must refrain from expressing definitive opinions until after I have seen more material, preferably several plants from each locality. It is such cases as this that make me impatient when I witness the off-hand manner in which some systematists toss off undigested species. One does not advance science when one refuses to take time to contemplate perplexities. I noted the variation in the termination of the lip of the right hand flower. This variation might be expected but to understand its significance several flowers from a single raceme should be examined.

I have been unable to discover, as yet, how *Epidendrum lorifolium* differs from *E. palpigerum* Reichenb. f. Furthermore I have been unable up to the present time to differentiate between *E. palpigerum* and *E. imatophyllum* Lindl. Lindley's type, of course, came from farther south, but that does not necessarily mean specific distinction. I wonder if Schlechter has overlooked *Epidendrum palpigerum* in his determination to recognize the Central American species heretofore referred to *E. imatophyllum* as a distinct thing? I have compared your material with the Reichenbachian type and I have as yet failed to detect differences.

Charles Oakes

Telephones
Boston, 447 Back Bay
Stoughton, 74-2

Three hundred and fifty-five
Commonwealth Avenue

October 20th, 1922.

My dear Mr. Powell:

I think your 78 is surely *Masdevallia Livingstoneana* Reichb.f. There are still traces of the eyes at the base of the lateral sepals. This species should be searched for diligently until it is found.

This afternoon I found time to go through the specimens that arrived a short time ago. I hasten to make amends for any seeming lack of appreciation of the excellent work you have done. The drawings, photographs and the colored sketch of *Stanhopea Wardii* make a delightful acquisition. A thousand thanks for your kindness in sending them to me to clarify your herbarium specimens. I missed these treasures when I made my first hasty inspection of the packages. It is needless for me to tell you that it is such records as these that bring joy into the work I am doing. They have a personal touch that renders them invaluable now. Their value later on, as time passes, will be inestimable. I have mounted the colored drawing together with the two photographs and have added them to the cover which contains *Stanhopea*.

I have looked again for 78 in the Kew Set

October 20th. 1922. Page 2.

Telephones
Boston, 447 Back Bay
Stoughton, 74-2

Three hundred and fifty-five
Commonwealth Avenue

It is missing. Perhaps Rolfe, in what seems to have been a characteristic failing of his declining years, tucked the specimens away in some pigeonhole that has escaped the search being made by the Kew authorities.

I am delighted to learn of your decision with regard to *Habenaria* specimens. In view of the work I have done on the North American species it would seem that I am entitled to your consideration. As an aside, allow me to tell you that this statement would, by some workers, be taken as equally applicable to all collections of Central American orchids in view of the fact that I am engaged on the construction of an orchid flora of Central America. Is it not strange that I should have to wait on the publications of a European botanist. One would suppose that the man who has a regional flora in hand would have first call on collections that are being sent out for study.

It surely seems good to be back at work again. But, I feel already the overwhelming task that I have in hand to keep abreast of my competitors and at the same time do that type of work that will be creditable to American botany.

Yours faithfully,

Robert Ames

BALBOA, C. Z., PANAMA October 24, 1922 192

My dear Dr Ames:

I have your letters of Oct 10 & 11 both of which I have carefully read over. Tonight I will consider only that of the 11th as it is the most important and requires a prompt reply- In considering it there are certain fixed fundamentals, which are inescapable:

- 1 a, The wages of men on the Isthmus are governed by the rate of pay as set by the Panama Canal. It governs wages all over the Isthmus by influence, and the pay of a man cannot be gauged by the rate of pay of the natives in other tropical states.
- b, The wages of a common laborer is \$ 40. per month and I cannot employ my man for less than \$ 50 as he is intelligent, a plant man, and can be taught up to certain point to do anything. He can read and write.
- c, The incidental expenses of this man will amount to more or less; say for street car fares, horse hire, boat hire, and lodging etc when he remains away more than a day at a time. Panama being a land of distances and poor trails requires time to get about. These expenses will have to be incurred, as it will be necessary for him to go distances from the city to successfully prosecute his searches.

2 My garden is a purely scientific effort on my part, because

- a, There was no Botanical Garden in Panama or in the Canal Zone.
- b, There was a constant need for it, and
- c, My love of Botany and Orchids, influenced me to make the effort.
(Since starting it I have learned how weak the Bot Gardens are in Panama Orchid knowledge)
- d, This garden has cost me 8 years of the most constant painstaking care, and about 3000 or more dollars in money.
- e, I am a man on a Government salary; every cent of which over and above the living expenses of myself and my daughter, have been spent in its care and extension; and I could have spent much more to a great advantage if I had have had it.
I would be very glad to have an additional income to relieve these needs.

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Considering the foregoing, I am going to make you a proposition along the lines of your letter, but more extensive in its nature. For this reason I did not cable you as requested- there being no emergency need for it.

- 1 Subsidize my garden by paying me a salary of \$ 200. per month.
- 2 In consideration of which I will agree
 - a, To employ the man, and a boy when indicated, pay his salary and expenses; teach him; and overlook his work in making specimens from the field; also see that they are put in proper condition for shipment, and send them to you.
 - b, You can have your field men in Cent and South America ship plants (encountered by them in their Botanical trips) to me to be cultivated in my garden, (as they cannot be sent to the U.S. on account of the plant quarantine and other difficulties) and from which I will prepare and send you Botanical specimens as they flower. The plants to be permanent to the garden. We have ships up and down both costs.
 - c, Your field men to be privileged to use my garden for any observation and study desired. *all S.A. men will have to pass through Panama.*
 - d, You can have them or a special gardener to do extensive hybridizing work for investigation purposes.
 - e, The garden can be considered as a repository, or a branch *for* of your U.S. garden- as far as procuring information of plants or their cultivation is concerned, and for any other scientific purposes.
 - f, I will give your field men the benefit of my knowledge at all times.
 - g, It is understood that the foregoing is for Orchids only.
 - h, My services in this matter are to be understood as secondary to my Official duties.

I have thus outlined a plan which I believe will redound to the great mutual benefit, This will ^{also} enable me to be more liberal in my employments, when I go on my annual vacation to the mountains in search of plants.

*Lay out his trips for him
to do as I want for myself.*

*you can have
get many specimens
which would be
needed.*

Canal zone

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Should you consider this favorably I would suggest that you reply as promptly as possible, as the dry season will be here by about the middle of November, when plant collecting should be actively begun. Also the flowering season begins with the dry season, and every day should be taken advantage of.

If this arrangement is consummated I can then sever relations with Dr Schlechter without any wrench to my conscience. I am only bound to him by my agreement to send him my specimens, upon his proposal to give me determinations and to publish them promptly. Both of which he has broken many times. Still, I have rather felt that his shortcomings did not ipso facto release me from my promise; but this ^{arrangement} would so change the status that it would. You can write such a letter as should be sent him, and I will copy and send it.

I will within the next few days send you ^{bottled} a rarissisimo- the female flower of *Catasetum bicolor*. This plant Dr Schlechter wrote me was one of the lost ones (like the *Masdevallianum*) and was a very rare herbarium specimen. Female not known. I have only one small plant. *The lady will be small, only one on stem.*

Most sincerely yours

C. Powell

The flower is now kept in a bottle. You have made a fine specimen. my No 168.

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Since writing you on 24th I have seen my man, and he will accept the 50th and expenses. He also suggests that when they go far they go together, so as to cover ^{expenses} quickly and return with specimens.

Since writing you on 24th I have seen my man, and he will accept the 50th and expenses. He also suggests that when they go I may go together, so as to conveniently and return with specimens.

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Since writing you on 24th I have seen my man, and he will accept the 50th and expenses. He also suggests that when they go I may go together, so as to conveniently and return with specimens.

Cut Powell

my territory.

BALBOA, C. Z., PANAMA October 29, 1922 192

My dear Dr Ames:

I have ~~several~~ of your recent letters with only parts of them replied to. I have been very busy with my garden lately incident to my recent move, is my appology. I will now try and close them all up.

I have received the photo of Masd Livingstoniana, Reich.— an examination of this under my large 4 inch, (X 8 magnification) lens leads me to still believe that my No 78 (flower sent you in mine of Oct 8) was the M. Livingstoniana. Perhaps you note the great similarity of shape. It also had the maroon eyes on sepals, as you may observe from the dried flower. The vegetable parts are to my best memory the same.

How would it do to write Schlechter an ultimatum, saying substantially - that unless he ~~ixx~~ publishes his determinations by Jan 1st, that I will send my specimens to you for determination and ~~ix~~ and publication. That I have come to this, because of his unnecessary delay in doing it ~~and~~ although he has assured me ~~an~~ many of his letters that the Ms was practically ready for the printers, one of them as far back as last November, several of them since; and one particularly, written while on his vacation in July, in which he assured me that it would be ready on his return to Berlin in August.

I have a letter from Lankester in which he says that he will send you specimens, and thanking me for my instructions of how to make a good Herb specimen. (I had written him a long explanation of what was one, and how to make it.)

BALBOA, C. Z., PANAMA Oct 29 - 22 192

I have another fascicle of some mighty pretty specimens, which will be coming on to you before many days. Some finishing touches to be put on them yet. Habenarias F and G are now dry and will be sent in the package.

If there are any particular specimens of which you wish bottled specimens of flowers, will you kindly send me the numbers so that I can have them before me, and take advantage of a flowering. It is quite difficult for me to decide what I think would be desired by you.

I will begin shortly to send you specimens of my Non- Panama, American plants. Schlechter has been begging for them, but he will not get them. I have ^{heretofore} sent him 4 or 5 which I particularly wished a determination of. I take it that you do not care for my Indian and Australian plants, as perhaps you have these countries well covered. I have in flower at this time a Dend. Johannis direct to me from the Solomon Islands. A mighty pretty, chocolate S & P, with a yellow labellum. Side lobes of lip striped chocolate and yellow. I cannot send you plant specimens of any of my foreign plants, as it nearly all cases I have only the one plant. *Except a few Indian Dendrobies*

Most sincerely yours

C. W. Powell

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My usual budget of notes:

Regarding No 17 Epidend ^{Li}dendrofolium and No 138 Epidend lorifolium -
both of these plants throw adventitious growths at ends of old stems,
as do Dendrobiums, which make rootlets and which will grow if cut off
and planted in moss. *I have failed to write you this.*

Has the experiment ever been made of drying and pressing flowers taken
from the Alcohol and Formalin mixture. It seems to me that it would
be possible to get some good specimens of the large fleshy flowers, ~~xxx~~
which mould so easily when drying.

Will you kindly send me the formula of the Phenol- glycerine prep-
aration. I wish to preserve some specimens and this seems, by your
using it, to be better than the Alcohol- formalin mixt.

Regarding No 16 Cattleya Deckeri, Kl. If you will refer to page
261 of Orchid Review Vol VIII, (1900) you will find quite a
lengthy article by R.A.R. reviewing all that has been said about
it. If you are not familiar with the article, it might be worth
reading, in view of your determination to make this one of your
Panama illustrations.

BALBOA, C. Z., PANAMA November 5, 1922 192

My dear Dr Ames:

I have the photographs of your beautiful home and grounds, together with that of Mrs Ames and your daughter, all of which have been added to the Herbarium sheet for permanent preservation. Will you please accept my warmest thanks for them.

Please say to Mrs Ames, that besides giving the Orchid lovers the very great pleasure she has done by her beautiful drawings in the Orchidaceae, she has been the cause of a miracle. My daughter, who is here with me, after our studying many times these drawings said to me some six weeks ago that she believed she could learn to draw Orchids. I laughed at her, because I had never thought of her as a pencil artist. I told her that she could not draw a cow. She replied I am going to try it anyhow, and if I can do so I will learn to draw and illustrate your flower sheets as Mrs Ames does those of Dr Ames. To humor her I told her "to go to it". She got her a flower, pencil and tab and produced a very creditable drawing from life. Since, she has from time to time drawn a flower and shown me and her progress is simply wonderful. I am sending you two of her attempts. Remember that up to six weeks ago she had never made any effort to draw and did not know she could. These two are from life, pretty good, are they not ?. Ofcourse she and I both know that these would not do for permanent work- they are only sent you because of the pride I have in her discovery and for which she thanks Mrs Ames.

Very sincerely yours

C. W. Powell

Telephones
Boston, 447 Back Bay
Stoughton, 74-2

Three hundred and fifty-five
Commonwealth Avenue

November 8th, 1922.

My dear Mr. Powell:

Your letter of October 24th arrived 1
last evening. Your proposition outlined under eight
headings is most attractive, although it calls for a
larger expenditure in Panama than I had contemplated
and omits a consideration of the time element which is
so important in all private enterprises. You understand,
of course, that my interest is purely a botanical one,
that my desire is for herbarium specimens and that my
measure of success is the number of specimens secured.
The expenditure of two hundred dollars a month to be
worth while would mean that the number of specimens
collected and delivered would equal the money value of
specimens as usually purchased. As an example let us as-
sume that the rate per specimen was set at twenty cents.
Then for each dollar expended, to be profitable, the
venture should yield five specimens. That would be at
the rate of one thousand specimens every month or twelve
thousand specimens a year. While twelve thousand specime

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Commonwealth Avenue

mens is not a large amount of material for daily collecting through a whole year, it is perhaps beyond the realm of reason when the time for field work is in a measure governed by climatic conditions.

Although the advantages offered under headings b,c,d,e,&f of your letter of October 24th might prove attractive at some future time, I am unable to profit by them now. This being the case, my expenditure would be non-productive except for clause "a". Even if I wished to take advantage of the facilities offered for field men and experimental efforts, there is no immediate prospect of my being able to do so, because I have no field workers near Panama and have no means at present of directing experimental work so far away from home.

You will understand, then, that my reaction to your proposition is stimulated wholly by present prospects and by the probability of successful field-work being done through a space of twelve months.

In my mind the thought is prevalent that a trial enterprise would be the wisest policy. Why not limit the peak-load to the best orchid season, say three or four

Three hundred and fifty-five
Commonwealth Avenue

months. When the flowering season is practically over, the man you have trained could be retained in your garden at fifty dollars per month to do routine work and to make such excursions as reason would warrant. In this way I would have the feeling that my investment was wise and there would be no likelihood of the very human thought that my subscription to the enterprise ^{was} questionable.

It is with the understanding that you will agree with me that I enclose ~~as~~ a preliminary draft to your order for two hundred dollars. If you do agree with me I am ready to send the necessary additional funds and equipment to carry on our project as outlined in my paragraph #4 above.

When you receive this letter please read it closely. I am sure that there is need for co-operation between us, not only for the pleasure that we should derive from constructive work in a fascinating flora, but for the advantages our efforts would bring to American orchidology. Undoubtedly the best plan is to begin. As our project goes forward modifications may be made and instituted.

Yours faithfully,

Mr. C. W. Powell,
Balboa, Panama.

Oakes Ames

THE PANAMA CANAL
CANAL ZONE

Balboa Dispensary, November 10, 1922

MEMORANDUM FOR Dr Ames

I am hurriedly sending to you this morning by registered mail (I received it about 10 minuted ago) preserved in a bottle, - one flower, and stem of buds, of the much desired *Selenipodium chica*, Reich.f. I would not take chances on the ~~others~~ flower remaining until the buds opened. This will give you a starter, and shew you its manner of flowering. It seems to open in succession.

I am sure that more will follow later.

I have had to hurry this to watch the mail, which closes in $\frac{1}{2}$ hour for the States.

Most sincerely yours

C. W. Powell

355 Commonwealth Avenue, Boston, Mass.

November 18th, 1922.

My dear Mr. Powell:

Under separate cover I am mailing to your address my last pamphlet on orchids. As there are several Panama and Costa Rican species described, I am sure that the contents in general will be of interest. I have been wondering if my Epidendrum alanjense may not be the same as your #84, determined by Schlechter as Encyclia chiriquense. The differences are extremely slight and only such, I now believe, as may well make their appearance in plants that are subjected to the artificial conditions of cultivation. As a matter of fact one reason why I am so anxious to receive wood specimens from you is my distrust of cultivated material for systematic work. This brings me to a consideration of your #83, Encyclia Powellii Schltr. ined. May this not be Epidendrum ramonense Reichb.f? It has the short column wings of that species and the color blotches on the lateral lobes of the labellum that Reichenbach indicated in his colored drawing of the type. Your material differs only from E. ramonense, it seems to me, in those details which cultivation might bring into evidence, less luxuriant inflorescence, shorter flower scapes etc. Let me hear from you some time about your observations along this line. Of course the influences of cultivation in Panama may not be worth considering because you are located where the growing conditions must approach the normal ones of nearby country.

By this time you have received my letter with enclosed check. You may be sure that I am anxious to learn of your reaction to that letter and of the progress you are making.

I have not been able to find any labels of the type you wanted. I suggest that you import them from England. Plant press has been sent

Y

ours

BALBOA, C. Z., PANAMA November 20, 1922 192

My dear Dr Ames:

I have your esteemed letter of Nov 8th, with the draft
\$ for 200 as stated.

Your views co-incide with mine throughout, paragraph 4 is acceptable. In my letter of Oct 24th, I purposely omitted any time limit, as it was my desire that you might have the option of discontinuing the arrangement at any time in which you might feel that it was no further to your interest. I cannot guarantee any fixed number of specimens in any given time. I will send you all can that be had. I am just as anxious for you to get them as you are, and every sincere effort will be made to that end. I will certainly far exceed any field man you could have and with less friction and expense. There is however a slight error on your part as to the flowering season. This begins usually at the end of the rainy season, normally say Nov 15th, and extends until the beginning of the rainy season, say normally May 15th. I had made up my mind at the time I made the proposition, to suggest about May 1st its discontinuance as to the full amount, say cut off \$100, until the dry season begins again. It being my intention to let one of the men go then; and to keep the other, sending him out on propitious seasons of weather, there always being such intervals, and the later part of July and early August we have quite a spell of dry weather. During these periods many of the wet season flowers open up.

Not one dollar of this \$200 will go to my personal use- it will be all spent in the furtherance of Orchidology, of which you will receive both direct and indirect benefits. The direct in the immediate specimens sent you, and the indirect in the future, as time may go by.

As it would take practically every cent of the first \$100 to keep

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BALBOA, C. Z., PANAMA November 20, 1922₁₉₂

your man in the field, travel and living away from home being expensive in this primitive country, including the item of postage which it is estimated would amount to in the neighborhood of twenty dollars per month; I felt, that as I would have a large amount of personal work to do in the handling and the pressing and drying of specimens, after they were brought in, together with the controlling and directing of the man, that my labor was deserving of some recognition, which I could use in the upbuilding of my garden. I am sure that two men working over different routes, although in the same section, would redound to greater results, one supplementing the other in the gathering of specimens and plants. They could thus cover more territory and return to unload the more quickly and go out again. It is my intention to send them over the same territory more than one time, so as to catch the more plants in flower. Their first trip to the far interior will not yield as much as succeeding ones, because of unfamiliarity with the country. You must bear in mind that Panama is geographically quite a large country- some 500 miles long by about 40 at the narrowest. There are no wagon roads, only the narrow trails used by the natives going from village to village or to the coast. Almost all travel and intercourse is by water.

I have today sent word to the other man, who lives on the Atlantic side now, that I had a job for him and to come over to see me. He used to work for me and is a splendid plant man. He speaks Spanish, Indian and French. He can get along where it would be difficult for almost any other one to do so- because of his knowledge of the Indian (he is half Indian).

My intention and desire is to co-operate with you most whole-souly both as a sense of pleasure and to further American Orchidology.

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BALBOA, C. Z., PANAMA November 20, 1922 192

I have already mentioned some supplies needed for these men and I would now request that you will advise me the best method of packing the many specimens for shipment (they will have to go by post) and I feel sure that you have some kind of containers to keep the species separate- do you not place more than one specimen in a container, if so how are they separated in container, if at all ?. Kindly send me at once such supplies as you usually furnish your field men, who send specimens home by mail. Also bear in mind that many, almost a majority are bulky. Give me all the information which you may think worth while. I am enthusiastic over the work and its possibilities, and I wish to do it up right.

Now as to Dr Schlechter. Ofcourse this arrangement precludes his receiving any more specimens from me- for which I am pleased. I want America to have priority in everything. I asked you to write for me such a letter as I should send him, but you did not enclose it- kindly hurry it as I am anxious to get it off to him. His specimen numbers at this ~~time~~ time are up to No 257, with a few of the lesser numbers not yet having been sent, because of want of materials. I have here now, mounted up ready to send you nearly a dozen sheets, held up for his determinations. Shall I send them on to you with only the number on label, or await for the determinations - your ruling on this to hold good for those others which he has not determined, but of which I am waiting a flowering to make your specimen. Shall I send him the \$ 30.00, which I agreed to pay to the printing of his determinations ?. If so, I will enclose it in the letter you are to write for me, so kindly mention that it is enclosed.

Most sincerely yours

C. W. Powell

355 Commonwealth Avenue, Boston, Mass.

November 20th, 1922.

My dear Mr. Powell:

The flowers and buds of Selenipedium Chica Reichb.f. arrived this noon. I cannot allow a day to pass without writing to you my deepest thanks. Now we are in a position to make the first worth-while record of this rare thing. Now we can study it to ascertain its relationship to the Brazilian species of the genus. I will make a note of this gem in the next number of Schedulae Orchidianae. With the materials I have and the flowers it will be possible to put out a faithful portrait.

I have received several good letters from Mr. Lankester. I enjoy the way he writes. I should like very much to meet him.

My work on the Central American orchid flora is going along rapidly. I find many interesting facts in connection with misunderstood species, faulty determinations etc. The trouble is that I cannot see an end of the critical part of the job. By the way, Epidendrum Radlkoferianum Schltr. is nothing more or less than E. volutum Lindl.

I am looking forward to another package from you. I would welcome some Stelis flowers in the bottles. I want to study the minute structure from unpressed material.

I was very favorably impressed with the drawings made by your daughter. I hope she will keep on. We do so need the aid of those who have the gift to put on paper accurate pictorial records of those things that words fail to clarify.

Ch

POWELLS' HORTICULTURAL GARDEN

ORCHIDS ONLY

BALBOA, CANAL ZONE, PANAMA

Sunday night

December 3, 1922

BALBOA, C. Z., PANAMA 192

My dear Dr Ames:

I have your letters of Nov 18 & 20 for which thanks. Your new venture "Orchidaceae Quadam Americanae" No 1, is just what American Orchidology should have had for years past and will fill an aching void. Congratulations. I have gone over it with avidity and profit. Your *Epid alanjense* is most probably my No 84 determined by Schlechter as *Encyclia chiriquense*. The description fits remarkably close and taking the locations from which both come, both sea level, only about 20 miles apart, it is fair to believe them identical. When I go to Chiriqui in Feb or March I intend to cover this Alanje district closely, and I can then positively determine. ~~Your~~ *Epid pseudopiden-* drum, Reich.f. also grows in this Alanje district and I want to get it. My No 83 *Encyclia Powellii*, Schtr, ined, was first brought to my notice by a plant sent me by Mr Lankester. I after found it freely in Chiriqui, the flower stems are about 2-3 feet long heavily flowered. If this is *Epid ramonense*, Reich.f. it is passing strange that Mr Rolfe should have written me that he could not identify it, and later that Schlechter should have made both of his mistakes, after having his attention called to his first error. The plant and flowers closely resemble the colored figuration in Bot Mag of *Epid profusum*, Rolfe. However I have learned that these "Savants", both, made many errors, and it may be you are right. The ^{National} herbarium at San Jose, C.R. should settle this conclusively.

I have also noted your determination that *Epid Radikoferianum*, Schtr. is really *E. volutum*, Lindl. and I have ^{so} noted this on my specimen.

I am so pleased that you like Lankester's writing. He is a fine fellow. Has a great deal of badly digested Orchid lore, but withall is mighty well posted.

P.S. I neglected to enquire in my letter of 20th Nov. - Do you wish bulbs (free plants) in the woods specimen sent to be made, as I am now doing on *Harbortium* plants sent you? Of course in bulbs or small plants or very small bulbs this is simple but the big heavy bulbs, as many have, how do you wish them?

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BALBOA, C. Z., PANAMA _____ 192

Your man has been out to the woods, practically every day - such as were dry enough. He has ~~not~~^{as} yet procured but few specimens, as the flowers have not opened, but he tells me that he has marked down some fine prospects. He is surveying different localities now, so as not to waste time and effort going to unfruitful locations when time is everything. My old Indian seems hard to locate. He went to Colon to get work and I have not heard of his having received any of my messages. He will do so however soon, as I have out several lines looking for him, and I feel sure that he will come to me when he gets my message.

I am sending you by this mail an individual map of Panama. This I have sectioned off in districts for the better reference. These districts are all divided by natural boundaries and should produce a variation in its plant life. I have a copy for use of myself and men, divided in the same way. You will note how sparsely settled it is and that almost all communications are from the coast. Friday and Saturday he was at the ~~work~~ eastern confines of No 1, returned late yesterday. Tomorrow, Monday, he will go into No 6, in the hilly range between Arrajan and La Chorera. This should turn out well. He may be away two or three days.

Did you receive the bottled specimens of the females of *Cynoches Warscewiczii*, Reich.f. and *Catasetum bicolor*, Kl. You failed to make mention of them in your letters.

Not much in flower in garden at this time, though many flower spikes are in evidence, and my hopes are running high.

Very sincerely yours

C. W. Powell.

I have a fine specimen of *Selenipedium*^{Chica} for you - now dry. will send with package this week. It is numbered 258. your first number.

255 Commonwealth Avenue, Boston, Mass.

December 5th, 1922.

My dear Mr. Powell:

Your letter of November 20th has arrived. I am delighted at the view-point you have taken. I am sure that my best efforts will be used to make our co-operation a joy to us both. I do not wish to have you burdened by the feeling that you are under obligations to collect and supply a fixed number of specimens. What we both desire is an orchidological survey of Panama. I am sure that you will do everything in your power to push forward such a survey and to gratify my expectations as to your ability to make good.

Use newspapers for packing folders. If there are too many specimens of the same number to ^{go}/within one fold of the newspaper, then lay in separate sheets to accommodate the surplus. Material packed in this way can be placed in bundles six inches thick and with thin card board guards be forwarded by mail. This is the method used by the most efficient collectors and gives satisfactory results. The cost for postage is really negligible. It would be out of the question to mount the specimens and forward each num

merin a genus cover as you have been doing. This method will be well enough for you herbarium set that we call the Powell collection. Of course I intend to add to that collection the new material you send up, but I suggest that you establish a separate set of numbers for the material collected in the field under the new plan. I would suggest that you start a new series of numbers beginning with 3000. It is doubtful if you will ever get to that number in your garden set. A number will consist of all the material ^{of the same species} collected in one spot that is made into specimens or of all the parts of a large plant that is divided to make several specimens. The same number must not be used again even if the species has been collected before. This method differs from your garden system in which all the plants of the same species bear the same number. I hope you understand the difference, because we must adhere to the methods that govern field work the world over. Read carefully pages 157 to 161 in Willis's Flowering plants and Ferns.

Another press was sent to you some days ago together with additional papers for drying. These presses should be taken into the field and the plants placed directly in

the newspaper stock folders between two or more sheets of the felt driers. I hope this is very clear. When the specimens are brought in it is possible to go over them and rearrange leaves or flower parts before the drying process has gone too far. Subsequent drying should be hastened by the usual methods. You need not expect field specimens to match up to your home dried specimens, but for scientific work they are all right. Cultivate in your men the habit of careful note-taking. Even if they have to learn a series of signs which mean color, habitat etc.

I enclose a few American Express Company checks for one hundred and ten dollars that have been lying by since my return from Europe. These will tide you over until my next check come due in January. You understand, of course, that my payments are in advance and that the money now in hand is for the first month which ends near the end of December, if you began work about the 20th of November. I like to feel that you have more than enough; hence the express checks. My next advance will go forward by the first of January 1923. Is this clear?

I understand of course that you have realized the need for advancing my work on the Central American Orchid

A

Flora which I am preparing for your Government under the United States National Museum , and that you feel that it is wise to sever all connections that tend to attract specimens to a foreign country. While it might be to your advantage to continue arrangements that have been very delightful, there is a sound scientific basis underlying your decision to turn the flow of your specimens from Germany to the United States. Furthermore, the arrangements that have been made enable you to do a great work in a more thorough manner than you had anticipated to be possible. This is simply an additional reason for your decision to cease sending material to Germany or England.

You suggest that I write a letter embodying the reasons that have brought about a change in your plans, this letter to be enclosed with \$30 . that you plan to send to Schlechter for the purpose of publishing a paper. I think it would be much better if you simply told Schlechter in your own way the reasons why you have decided to discontinue, for the present at least, to send him any more material. I don't think you need feel in any hurry about this. As to the money, I am sure that Schlechter will let you know when he needs it.

I have not heard from Schlechter for many days now. I find him a very intermittent correspondent. But in a letter dated October 8th, the last one I received, he wrote. "I am very busy since you left and have made good progress with my work. Soon I hope to send you the first copy of the Orchidaceae Powellianae Panamenses" He has, it would seem, finished the manuscript and is going ahead with the printing. If he has not written to you about his work, perhaps this little note will be of some interest to you and make it seem that the publication of your orchids is not dependent on the immediate payment of the thirty dollars you promised to contribute.

I have simply stolen time to send this off. As a result I have made a sad mess of things, but I am sure you will be able to get the gist of what I desire so much to say. If work ever slackens, and I see it growing more and more pressing every day, I will sit down and send you the conclusions that I have recently arrived at with regard to some of your orchids. As a matter of fact I am simply burning with curiosity to see what Schlechter will do with some of the determinations he has made for you when he faces cold print.

Yours faithfully,

Robert C. ...

BALBOA, C. Z., PANAMA December 8, 1922 192

My dear Dr Ames.

I am sending you by registered post tomorrow the following specimens

No	F	Habenaria	_____?
	G	"	_____?
132		Epidendrum, eburneum-	Reich.f. form
236		Pleurothallis, Wagnerii-	Schtr.
258		Selenipedium, chica	- Reich.f.
259		Epidendrum	-----?
O,36		Gongora, unicolor	- Schtr. N.S. From Costa Rica,

This will be the only Costa Rican specimen I will send, and I only send this because I have heretofore sent it to Dr Schlechter and it was determined by him. This you can disregard or not as you think proper. *LanKester will attend to them for you.*

I wish you to note the No 259 because of its resemblance to No 82 Epid Chloëcorymbis and its having come from Chiriqui, while Chloëcorymbis is from Sea level. No 82 is nearly double the size flowers and a larger plant, than No 259.

I am still holding the undetermined specimens of which I asked instructions in my letter of Nov 20th. and which I was expecting an answer to by yesterdays mail.

There have been but few flowers opened out in the past 6 weeks because of the excessive rains; which is now about over, as it has not rained, but only sprinkled, for the past week. Very many flower spikes are showing at this time and will mature in a few more days.

When No 259 is determined, kindly fill in name on label and advise me in your first writing thereafter. I would also like you to number the Habenarias A to G as follows A- 260, B- 261, C-262, D-263, E-264, F-265, G-266 and advise determinations under these numbers, when made, and I will send you label cards for them.

Am very busy looking after the success of our new venture.

Very sincerely yours

C. W. Powell

355 Commonwealth Avenue, Boston, Mass.

December 12, 1922.

My dear Mr. Powell:

Yours of the third arrived at noon. Taking your letter in the order of its contents I have the following to say:

Schedulae Orchidianeae ought to fill a need in our botanical papers. I hope to include in it, from time to time, the good things that your energy and interest bring to my attention. The second number is being made ready for press now. It will include a good plate of Selenipedium chica with Mr. Powell standing beside a diagrammatic plant.

Epidendrum ramonense Reichb.f. In spite of the popular belief that those who specialize in a group are omniscient, different minds interpret similar data in dissimilar ways. Different eyes see differently. Now Rolfe could not have known Epidendrum ramonense, because, if my memory is good, there is no material at Kew. I am not sure that Schlechter had material, but, having seen the Berlin representation of the genus I am not surprised that he should have had difficulty in determining your material.

Your specimen matches my tracings and photographs of Reichenbach's type and agree with Costa Rican material given to me, ^{by Schubert} unnamed which I am sure represents Epidendrum ramonense. I know Rolfe's E. profusum. This seems to be a good species. You have not yet turned it up.

In making specimens it is well to get as much of the plant as possible. By shaving off one side of some of the larger plants it is possible to make good specimens that include the vegetative parts.

I am delighted to know that work is already in progress. The scouting game is the best possible for resident collectors. Keep this up! !

The map of Panama will be mounted and hung with my other maps of Central American countries. Many thanks for your kindness.

The bottled specimens of Cynoches and Catasetum arrived safely.

I determined your 131 in the Kew Set as Epidendrum Ottonis Reichb.f.

Epidendrum pseudopidendrum is almost as scarce as Selenipedium chica. in herbaria. Reichenbach's material was very poor. You will have my blessing if you turn up this wonderful thing.

I am in sad need of Epidendrum turrialvae. You have not sent this although it is on your list. Please send material at your earliest convenience.

I note that you have numbered the Selenipedium 258. I suggest that you begin with the number 3000. It will be well to keep your garden plants separate as to numbers from your wood's specimens. My last letter will make this clear.

Schlechter writes, November 25th, "The Panama Orchids from Mr. Powell are all described and a large manuscript is going to the printer's.". This news will please you.

I wish we could keep Schlechter out of the American field. Otherwise there is bound to be a great deal of confusion owing to the simultaneous publication of species. I hope you will come to agree with me that it is for the best interests of American science to dissuade correspondents from sending material to Berlin.

I still have a great deal of information for you, but it will be well to delay it until I am more at ease than I am now.

We are still talking Panama in late January.

Yours faithfully,

Charles D. C. C.

Three hundred and fifty-five
Commonwealth Avenue

December 18th, 1922.

My dear Mr. Powell: Your letter of December 8th, is at hand this morning. When the package of specimens comes in I will send you a report on my findings. Many thanks for the ^{Venezuelan} ~~Costa Rican~~ specimens of Epidendrum atropurpureum. As to the two forms of Epidendrum eburneum Reichb.f., enclosed in your letter, I beg to inform you that I have already noted the difference in the lobing of the lip. In fact this character has made key work difficult. From the material I have examined I am inclined to regard the differences in the lip as the result of normal variation. The tendency toward lobing ^{be} may/present in varying degrees. I would keep both forms in the same category until there is evidence that they are peculiar to restricted and separate regions. If they represent geographical localities and are never found merged, then it might be well to recognize a "var. triloba"; otherwise not.

Please send any unidentified specimens. Also let me know the numbers of the Kew Set of which duplicates were not sent to Schlechter.

All good wishes for an enjoyable holiday season go to you with this letter. Yours faithfully

BALBOA, C. Z., PANAMA. December 20, 1922 192

My dear Dr Ames:

I have your letter of December 5th by this afternoons mail. Enclosure of the \$ 110. Express orders is acknowledged, and is perfectly satisfactory. This is just a hurry letter to advise you of the receipt of the enclosed letter from Dr Schlechter, with determinations and corrections, and to get them to you. I am ^{ing}sent him the \$ 30. as per enclosed copy of my letter, as he advised me of the completion of the manuscript and that he was awaiting the promised money.

You will note that I did not touch upon the matter of discontinuance in sending specimens (~~for the present~~, I will just stop) as the great thing now is to get out his pamphlet. You will also note the cancellation of all ^{undetermined} lesser numbers than 257, in order to get the ^{old} lists printed at once. When I send you any of these ~~number~~ numbers I will give them a larger number, consecutive with your series; and I will refer you to the old number if it is one of the Kew set- otherwise it will make no difference.

After about a week I will write Dr Schlechter telling him of our new arrangement, and that under it I feel that I am under the obligation to send all future specimens to you. This will give him time to receive my letter of today with the money, and to put the matter in the hands of the printers. Thus insuring that he will not hold it up. Sub-rosa, I do not trust the Germans. not to engage in a little spite work.

Tomorrow night I will prepare and send you all of the sheets I have, covered by these determinations, and some others of previous determinations. I will also reply to your letter of the 5th.

Sincerely yours

C. W. Powell

23,
November ~~xx~~, 1922

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My dear Mr Powell:

Most probably you will be very impatient to hear from me. The reason that I have not written for such a long time was, that I was awaiting news from you, respecting the funds for the printing of the manuscript of your Orchids. (I wrote him that when he was ready to let me know and I would send him the \$ 30.00, which he asked me for- Powell.)

This manuscript, in which I have not only described all the new species but given notes too on all the others that you have sent to me, is now ready for print since more than a week and as soon as the printing funds arrive, that you have promised in your last letter, it will go to the printers. You will receive 50 copies free and besides about 40 reprints of the numerical list. As far as I can see it will make a nice little book of 100-115 pages, perhaps more.

Now as to the numbers of which you needed the names I am sending them herewith:

No 23	Dichea, Powellii	Schtr. N.sp
31	Sobralia, panamensis, var albiflora	Schtr. N.var
131	Nidema, Boothii Schtr, var triandrum	Schtr. N.var
133	Oncidium Sp	
153	Phragmopedilum, Warscewiczianum (Reich.f.)	Schtr
154	Trichopilia, suavis Lindl var alba hort	Schtr
	(This is clearly an error, as this is a <i>marginata</i> - Powell)	
227	Pleurothallis, chiriquensis	Schtr N.sp
> 244	Epidendrum, Porpax	Reich.f.
245	Hunteriana , Pleurothallis, Hunteriana	Schtr. N.sp
246	Lycaste, macrophylla	Reich.f.
247	Stellis, Powellii	Schtr. N.sp
248	Warscewiczella, aromatica	Reich.f.
> 250	Epidendrum, probiflorum	Schtr. N.sp
252	Pleurothallis, octomeriae	Schtr. N.sp
253	Sobralia, epiphytica	Schtr
254	Lepanthes, chiriquensis	Schtr. N.sp
255	Osmoglossum, acuminatum	Schtr. N.sp
256	Maxillaria, orcocharis	Schtr. N.sp
> 257	Epidendrum, fuscopurpureum	Schtr. N.sp

I would advise you to put any new things appearing now into the cancelled numbers, so that you get a list properly running through without break.

In writing out the manuscript I have come across some ~~errors~~ erroneous determinations and some others changes that have to be made, out of nomenclorical reasons. The following numbers should have their names changed as follows:

✓ 3	Sobralia, Rolfeana	Schtr N.sp
51	Lockhartia, micrantha	Reich.f.
60	Catasetum, Warscewiczii	Reich.f.
75	Lockhartia, Oerstedtii	Reich.f.
84	Encyclia, Hunteriana = <i>Epid alanyense</i> Ames	Schtr. N.sp

89	Epidendrum, volutum	Lindl
95	Encyclia, tessellata (Batem)	Schtr
96	Mormodes, Hookerii	Lem
103	Stanhopea, Wardii Lindl, var amoena (Kl)	Schtr
111	Cynoches, Powellii	Schtr N.sp
116	Epidendrum, sculptum	Reich.f.
128	Bletia, purpurea, D.C. var Pittieri	Schtr. N.var
140	Lycaste, brevispatha	Kl
141	Epidendrum, platycardium	Schtr. N.sp
158	Sobralia, Fenzliana	Reich.f.
174	Ornithocephalus, diceras	Schtr. N.sp
186	Cynoches, Dianae (without a doubt)	Reich.f.
193-4-5-6-7- 200-1-2-3-4	Mormodes, atropurpureum	Lindl
199	Mormodes, Hookerii	Lem
223 & 235	Masdevallia, Livingstoneanum	Roez & Reich
229	Hexadesmia pachybulbon	Schtr N.sp
230	Signatostalis costaricensis	Rolfe
240	Leucohyle subulata (Sw)	Schtr
236	Pleurothallis, Wagnerii	Schtr

For want of sufficient material or a plant specimen, I have not yet included in my determinations the following numbers:

- 12 & 13 Catasetum, maculatum ?
 108 & 110 Catasetum, Oerstedii ?
 164 Oncidium, sp near V Carthaginensis
 133 Oncidium, sp most probably a new one

(X) Do try to get good material of all different forms of Oncid
 cebolleta. Your No 55 and 220 are evidently O.stipitatum of Lindl
 surely not O.cebolleta.

Have you not found Eriochocentrum panamense, Rolfe. I am very
 anxious to get it. What about Coeliopsis? Hope you have got some good
 materials.

With this I will close for today, in the hope that soon the
 funds will arrive, so that we can bring the work out, which will give
 you, I am sure, great satisfaction and the credit of the valuable
 work, that you have done in Panama. With best wishes

Yours sincerely
 R. Schlechter

P.S.

Perhaps you can begin now to send me materials of your non-Pan
 ama Orchids.

Do try to induce Mr Lankester to send materials to me too.

X do you think of this?
 Powell
 X note this - what do you think - you have 220
 Powell

355 Commonwealth Avenue, Boston, Mass.

December 31st, 1922.

My dear Mr. Powell: I have received your letters of December 20th, with copies of letters to and from Dr. Schlechter enclosed. I have also received the specimens of which you enclosed a list in your letter of December 8th.

EPIDENDRUM 259 is E. difforme Jacq.

I do not understand the situation with regard to the paper devoted to your orchids that Schlechter has in hand. In his letter to you of November 23d, he informs you that it is ready for the printer. But that he was waiting to receive money from you before printing. On November 25th, he wrote to me that the manuscript was about to be sent to the printer. In a hurried note received from him on December 28th, he writes that the Powell orchid paper is in print. If you give these dates close attention you will come to the conclusion that they print and read proof faster in Berlin than they do here.x

I am pleased to hear from you that the express checks arrived safely. As I understand the financial situation you are well provided with cash and behind in expenditures owing to the fact that you were still without the services of the second native when you wrote to me on December 3d. It would be well, I think, to keep some kind of a record so that we can know at any time just how we stand. I will get another draft off to you sometime next week.

Under another cover, day before yesterday, I mailed to you a copy of Plate I from Schedulae Orchidianae. I hope this will amuse you. The next number of the Schedulae should come out next week. A copy will be sent to you on the day of publication.

I note that Schlechter has identified your 131 as Nidema Boothii Schltr. var. I do not understand the species name, if the material I have seen in the Kew Set and the specimens Schlechter has are conspeci-

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fic. I cannot imagine where the name Boothii comes from, unless it is a change of name, improperly made, from Boothianum, a species of Epidendrum described by Lindley. Furthermore, I do not know of any Nidema Boothii Schltr., and this I mention, because one does not describe a variety until a species has been recognized. The name Nidema was proposed for Epidendrum Ottonis Reichb.f. by Britton and Millspaugh in the Bahama Flora. I am surprised that Schlechter should have taken up this name, as it seems to me that the type species of the genus, that is, Epidendrum Ottonis Reichb.f, is with great difficulty separated from Epidendrum. However, there is a modern school of botanists of which Schlechter is an example who cannot tolerate a genus after it reaches certain proportions. It is characteristic of them that they split a large genus, no matter how loudly offended affinities may cry out against separation. (Cf. Orchidaceae vol. VII, page 130, under Spiranthes.) This splitting may seem to be warranted when a small section of the genus is under consideration, but when the genus is taken in its entirety the characters relied on for splitting break down horribly. This is true in Epidendrum to an astonishing extent. I have been working for a year attempting to justify the segregations proposed in Epidendrum, but I have failed to put my finger on a single character that will hold, and we do not consider a genus that rests on only a single character as of much value. Lindley went all over this ground in his Folia Orchidacea, and in Walpers's Annales, Reichenbach joined Cattleya to Epidendrum. We have before us a great, successful genus that still seems to be in a state of flux. We do not alter its evolutionary significance by wrenching it asunder. I advocate retaining it in its long traditional sense. Soon I expect to come out with a paper on this subject; in fact the manuscript is ready, but I am waiting for certain developments before

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going to press.

Just at present I am in a most uncertain frame of mind as to my trip to Central America. The United Fruit Co. is felling large areas of forest in Honduras. Most attractive facilities for collecting there have been offered to me by the Fruit Co. As you must realize the orchid flora of Honduras is very little known. Consequently I am burning with the desire to get among the tumbling trees to study their epiphytic freight. Another attraction is Yucatan. Dr. Spinden of the Peabody Museum of Anthropology has begged me to accompany him to that fascinating region. Your Panama, and the fact that some of the biologists from here are going there in late January, calls with a strong appeal. I want to go to all three places. If the time element allows me to follow my inclinations I will reach Panama. The chief difficulty seems to be the difficulties of getting from Yucatan to Honduras without using up so much time that Panama must be postponed until next year. The fact that you are working in Panama makes it seem wisest for me to concentrate on Honduras. As the calls of Science are what we must consider, I think you will agree with me that the best plan is to forego, if necessary, the pleasures of a meeting between us this winter.

In making my plans for collecting in Honduras I have been contemplating the best methods to adopt for making good specimens. I find that in the tropics the corrugated boards that we space between drying specimens, flatten out under the influence of moisture. Now I am investigating corrugated aluminum. It seems to me that sheets of thin aluminum would hold their shape if corrugated or "pyramided" and that they would form damp-proof walls between the driers. Why do you not try sheets of tin or other available metal. I think the idea is worth carrying out.

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For the present I am regarding the Habenarias as H. petalodes Lindl. The small flowered forms represent the variety micrantha Reichb. f. Let us wait for Schlechter's paper before making a final stand on this question.

Your 244, 250 and 257, are much needed. Please send material when ready. Also 141, 116

We now have our key to the Central American species of Epidendrum completed. It has taken the best part of a year to construct this document. I have examined simply thousands of specimens in the making of it.

Stelis flowers in fluid preservative are much needed.

This letter brings to an end our correspondence for the eventful year 1922. I hope that 1923 will find us well on our way toward the preparation of an illustrated orchid flora of Panama. A volume of Orchidaceae devoted to such a flora would be a delightful thing to have in hand! Let us work with such a volume in mind.

Now comes the new year with all its promise. Please accept my best wishes for 1923. I expect great things of you; you expect great things of me. If we work harmoniously toward the end we have in view, and in shooting at the stars, bring down a few good apples, the world may thank us a little as it grows wiser.

Yours faithfully,

C. W. Powell,
Balboa, Canal Zone,
Panama.

E 355 Commonwealth Avenue, Boston, Mass.

January 5th, 1923.

My dear Mr. Powell:

Your letter of December 25th, 1922, with enclosures is at hand this noon. I think your letter to Dr. Schlechter is all right. I hope it will not make him angry with me. I am afraid that it will be a shock to him, because he seemed to think that Central America was practically his for the asking. In fact his self satisfied behavior was a bit disturbing to my sense of humor. In any event, the turn affairs have taken in Central America is most gratifying to me. Costa Rica is the only weak link in the chain of operation. Through the United Fruit Company, Guatemala and Honduras are now in a way to receive the most concentrated attention in their history from an orchidological point of view. I am perfectly overwhelmed by the attitude of the Fruit Company. Letters are being sent to the managers in every important locality with orders to collect and to bring in all orchids found. Pressing is to be done. At the same time the specimens will be protected awaiting my visit in late February, so that I can observe them growing.

From your description and the colored drawing I should say that your 269 is a *Bulbophyllum*. It would be difficult to tell you the specific name without complete material. To tell anything at all from a colored drawing of a single flower makes me feel that I am entitled to a little praise. It is probably closely related to *B. Oerstedii* Reichb. f. There is a *B. Wagneri* Schltr. from Panama to be considered. We can get down to details when the specimen comes in.

I leave for Yucatan on February first. Then to Guatemala and Honduras under the auspices of the United Fruit Company.

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass.

January 5th, 1923.

My dear Mr. Powell:

Your letter of the 22d. December, 1922. has just come. I have already replied to your letter of the 25th.

I wrote to you on December 31st, relative to *Nidema*. This is a segregate from *Epidendrum*. I am not prepared to accept it at present. When I can see my way clear to a rational breaking up of *Epidendrum* I may change my mind. I say this after having worked hard for over a year to find reliable characters for segregation. I really think *Epidendrum* is too large for comfort, but I do not approve of the procrustean method that some systematists adopt. If a genus exceeds the limits they impose, they reduce it; they allow other genera to grow until their fancy impels them to split them up.

Osmoglossum Schltr. This genus was given as a subgenus under *Odontoglossum* in ORCHIS 10(1916)164 and included two species: Odontoglossum pulchellum Batem. and O. Egertonii Lindl. It seems to me that Schlechter has a certain amount of justification for taking Odontoglossum pulchellum and its allies out of *Odontoglossum*, but I have not followed the matter to satisfactory conclusions. I find that Schlechter leans toward small genera, but that in making them he does not always go deep into surrounding affinities. Osmoglossum acuminatum has not yet been published. I think these remarks answer your question.

Schedulae Orchidiana no. 2. is expected from the printer tomorrow. You will be pleased to get this number as it has many new species from Central America in it.

Yours faithfully,

OVER

P.S. It may be well to delay your letter to Schlechter for a while. I am not sure just how he will react to it. Perhaps it will appeal to him as the most natural thing in the world under the circumstances, and I may do him a grave injustice in thinking anything else. Yet, from little bits of evidence, I am not sure that he will be at all pleased to find a valuable source of material suddenly removed from his grasp. If he resents my entrance into his field he may cease to have tracings made for me of his Costa Rican types that he is now about to publish. From his last letter I gleaned that these were soon to be published. I wrote to him the other day asking him to have tracings made at once. It would be quite too bad to have anything happen that would check the income of needed records. Of course I may be anxious for no cause. But, I am sure that you will agree with me that the best policy is to delay any news that might interrupt work that is of great importance from the point of view of the Central American Orchid Flora. From the evidence it would seem that Schlechter takes a very broad minded view of my work and is most anxious to help me in every way. In fact his friendliness is most astonishing. Perhaps it is a mistake to go into this matter at all. In any event, please regard this writing as confidential.

O.A.

Memorandum Foreign Check Issued

(Check should be sent by registered mail)

No. 139089

192 3

Date 1/6

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Customer

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355 Commonwealth Avenue, Boston, Mass.

January 6th, 1923.

My dear Mr. Powell:

I have just had the pleasure of dropping a copy of *Schedulae Orchidianae* no. 2 in the post box for you. I am sure this number will interest you. It contains a goodly number of Central American orchids and puts on record your discovery of *Selenipedium chica* Reichb.f. The plate of this species may not be satisfactory as to fig. 5., but that, you will understand, is simply an attempt to convey some idea of the height to which the species grows. So much for that.

Epidendrum prorepens is very close to the little species represented by your 152 in the Kew Set. I do not remember that Schlechter reported on this number of your collection.

I enclose a check for one hundred and fifty dollars on account of our work. I hope it will reach you in time to keep you in funds.

Perhaps the first fruits of your explorations of Panama will not reach here before I set forth for Honduras. By April, however, I will begin to look to you for some interesting material. Please remember that several specimens of each number should be prepared. If you have any doubts as to the method of making up sets, I am sure that some of the visiting botanists will give you information. As a matter of fact, it will be well for you to seek information from any botanist who visits your garden. Every one has some new idea to impart, and it is by keeping on the watch for new ideas that your work will progress in a scientific manner. For example, I learned from Pennell on his return from Colombia that corrugated boards which work so well here, flatten out in the damp

and sometimes get on fire when suspended in the presses over a fire. Pennell secured his best results by suspending the presses, surrounded by a long cloth hood, over a charcoal fire. The hood acts as a chimney. It must be kept well away from fire. The heat is confined by the hood and passes up through the presses, thus hastening the drying process. Dipping the vegetative parts of orchids in boiling water to kill the tissues is very necessary. Pennell also recommends the use of smooth surfaced cotton batting laid on flowers to keep them from getting pressed too hard. It often pays, when the stems are very thick, to have pieces of drier to lay on leaves and flowers so as to build up a pressing thickness. Otherwise the leaves frequently shrivel because they only get a part of the pressure. What I mean will be clear if I describe the method I adopt when pressing the flowers of Asters. To make the ray florets press flat I cut out of blotting paper a circular piece just the size of the protuberant centre, and place it over the "flower". When pressure is applied the rays receive their share of it, because the thickness of the blotting paper makes up for the extra thickness of the protuberant center. The blotting paper is cut in size so that it just covers the whole flower.

I am now planning some contrivance to use in Honduras so that I can dry quantities of orchids quickly. It seems to me that one of those electric bed warming affairs might be utilized in some way. If a heater, for example, could be inserted as a part of the drying pile, I think the time necessary to dry a batch of specimens might be much shortened. If you have electric current you can usually discover odd ways in which to utilize it. Put your problem before some of your electrical experts.

I think my corrugated aluminum sheets are going to work out well. It would be wonderful if one could pass heat through a series of metal sheets by wiring and thermostats. Just think of the speed with which the work could be done!

I am very anxious to examine some of your material that is free from the restraints imposed by your former Berlin connections. I am sure that we can put out our results very promptly. And if you submit alcoholic material it will be possible to illustrate some of the more interesting and critical species.

If I have failed to answer all of your questions, or if there are points on which I have failed to enlighten you, please inform me to that effect. I try to keep up with my obligations.

Yours faithfully,

P.S. Dr. Schlechter will probably send you the fifty copies of your Panama orchids before he gets round to sending me my copy. Will you please send me one of yours on the day you receive your supply?

O.A.

355 Commonwealth Avenue, Boston, Mass.

January 14th, 1923.

My dear Mr. Powell:

The specimens listed in your letter of the 22d, December, and the bottled material mentioned in your letter of the 25th, December have arrived in excellent condition. Many thanks for this additional strength to my representation of the orchids of Panama.

I have just noted two questions based on the copy of Schlechter's letter to you dated November 23d, 1922. I will answer them here.

Powell 223 determined as Masdevallia Livingstonii Reichb. f.

This is an incorrect determination. Your 78 puts at rest the vexed question as to what Reichenbach had in hand. I believe I have already helped you to clear this up.

Powell 220 determined as Oncidium stioitatum Lindl. There is no question about this. Your material is a spot match for the Sinclair plant from Panama on which Lindley based his description of the species. The callus in the disc at the foot of the column is very characteristic. This species is very clear, I think.

Another change in my plans has teaken place that may be of interest. I find that there is no direct service from Havana to Tela in Honduras. Unless we can pick up some irregular supply boat, it will be necessary to reach Tela via Colon. That means that the pleasure of meeting you this year will be assured.

Mr. Lankester has sent me his first fruits of orchid collecting. Nine specimens only, but most of them of critical importance. The new species, three in number, are already in manuscript and will be sent to the printer on Tuesday when *Schedulae Orchidiana* III goes to press. This will be rapid work, as Mr. Lankester's package only arrived on Tuesday the ninth day of January. You will see what to expect when you begin to give me your new things. One of the Lankester orchids is the largest flowered *Stelis* so far known to be a native of Central America. He also sent me one of those peculiar offshoots of *Telipogon* which has minute flowers and a very peculiar habit. He also turned up *Epidendrum physodes* Reichb.f. a species which is rarer than hen's teeth in herbaria. For the number of specimens sent he surely made me greedy for what he can do as time goes by. The chief thing now is to beat Berlin. One interesting species proved to be *Kefersteinia costaricensis* Schltr. I am now convinced that this^{is}/nothing else than *K. lactea* Reichb.f.

When I get back from Honduras I hope to have materials for a good paper. If you send material while I am away, I will work it up on my return and keep the *Schedulae Orchidiana* coming along at close intervals of time.

The United Fruit Company has promised co-operation in Costa Rica. I wonder if I can make up for the time when my eyes were turned toward the Philippines and others got a foot-hold in Central America? It will be hard work to offset Tonduz, Brade, Werckle, Amparo, and Jimenez and the big paper that Schlechter is about to bring out on Costa Rica. But, a beginning has been made and I intend to keep on the job.

Yours faithfully,

Charles C. Smith

BALBOA, C. Z., PANAMA Jan 18, 1923 192

My dear Dr Ames:

I have your two letters of 5th and one of 6th by today's mail, the one of the 6th enclosing check for \$150.00 for which accept my thanks, as I was beginning to be cramped as to funds. Now speaking of funds, I will request that you will send me as early in February your remittance as possible. Your not coming here, I will resume my original intention and get off to Chiriqui as early as possible after the 19th; and, as I wish to make a thorough research while there, I will have to employ ^{Each Section all} a number of men and make ~~it all~~ ^{and rapidly} concurrently. For this I will require plenty of funds. I personally will not have time to go out and make extensive hunts, but will remain at my stopping place and work up specimens as they are brought into me by my collectors. Ofcourse I expect to make some research myself, but it will be restricted by the need of caring for the collectors work; Chiriqui is par excellence the Orchid country.

The flowers are beginning to open up now and we put down today a number of specimens to dry. Speaking of drying and having in mind your enquiry as to an Electric bed warmer, I have long thought that one of the Kerosene stoves, with lamp and oven, would be fine. The lamp can be adjusted so that the ^{heat} ~~heat~~ will be just as you may wish it, and you will not have to sit over it and watch it. Nor will ^{specimens} ~~it~~ catch fire while ^d drying. I would not suggest one with an open burner, but one that uses a chimney lamp. Think on this.

I have long made it a rule to pump dry every one who comes near the garden as to methods known to him to accomplish things, and I have learned much thereby and profited from it. I have long used both the cotton batting and the extra fillers in drying out my specimens

BALBOA, C. Z., PANAMA Jan 18, 1923 192

with much satisfaction. The cotton padded ones require more watching to keep off mould, which can and will come in a single night.

My material from the woods will be pouring into you by April 1st, and could begin to come long before if you wish it sent on during your absence, which I gather from your letters may extend up to Apr 1st. While I am away my daughter will give all attention required to my Orchid affairs and, as she has always been my faithful adjutant, I have no fears of its not being properly done.

You should have just seen ~~as~~ how I jumped upon No 2 of the Schedulae and the avidity with which I read every line of it. If I can judge the other Orchidists by myself, a paen of thanks is going in to you for each number. It was surely a much needed publication.

I will not send Schlechter the letter until it is released by you. I am in accord with you as to probable effects, hence my already delay. With your permission, however, I would like to send him a specimen of the ^{1p.} Selen/chica, as that has been for a long time an item of correspondence between us, and he has been so anxious to get one. It cannot now, that I can see, interfere with your work. I believe Schlechter to be broad minded and this was evidenced when I refused him specimens at first, ~~xxxx~~ because of my promise to Rolfe. He wrote me "I would not do anything to interfere with Rolfe," but the German mind is a queer thing, as was made manifest in the famous declaration that "treaties were but a scrap of paper". I had expected to send you several copies of Schlechters book, believing that you might wish to use scissors in stead of typewriter, in some things. You shall receive them by the first mail out from here after I get them.

I am sure that our Herbarium work will be far more interesting now, that there is no one between us. I can write you originally about things and send you promptly things that have had to wait some times for months.

BALBOA, C. Z., PANAMA January 18, 1923 192

My daughter has improved so very much in her drawings, that I now believe I can trust her to figure the flower or plant, but not the small parts, and with my next Spec sheets I will send you an example of No 268 Masdevallia -----? and of No 22 Maxillaria-----?, which I believe you will agree with me are fine. I will also send you a fine plant drawing of No 269 Bulbophyllum -----?, made by my friend the N.Y. artist sojourning here for a while. I thank you for putting me on the track of No 269, I never would have suspected it to be Bulbophyllum, because I had thought of this sp as Oriental and African. Yet, ~~now~~ I am sure that you have it right. I have gone over all of the Bulbophyllum literature I have, but cannot find its like, closely enough for me to have guessed it.

Congratulations upon the U.F.Cos good offices in procuring for you specimens, and it should yield you many a fine specimen. This is of particular interest as to Honduras, because of its unexplored possibilities. Their facilities are superior to any other source, because of the large number of plantation managers and the unlimited labor they have.

I have in mind to do a famous piece of work this year in Chiriqui, as it will be my last up there. I had about determined to not do any more active field work, but your letter come and changed all of my plans. I would not trust any one else to do Chiriqui but myself, as I know the whole country and am much liked by the natives, whom I have always treated fairly. Then I speak Spanish fluently, so get along with them better because of which.

The hour is now late, and the mail is out tomorrow, therefore I will bring this letter to a close.

Very sincerely yours

C. W. Powell

P.S. Send me a package of fell dryers. all I have are down with specimens. also return bottles for specimens. Have only 2 or 3 left. The bottles in a package no are buying

355 Commonwealth Avenue, Boston, Mass.

January 20th, 1923.

My dear Mr. Powell:

Your letter of the eighth January has come. I am very much pleased to learn that the plate of *Selenipedium chica* reached you in good condition. By this time you are in possession of the 2d number of the *Schedulae* which contains the article that explains the plate. In connection with this species I wish you would investigate the fruits and ascertain if they have any suggestion of *Vanilla*. This is an interesting point and one that needs confirmation.

Schlechter has not yet sent me proof of the Panama paper. I will be interested to see this. What you say about his *Scaphosepalum panamaense* is momentous. In my letter of September 27th, 1922 you will remember that I informed you that I was unable to understand on what grounds Schlechter ran this species into *Scaphosepalum*. Now, in my opinion he has made a mess of the whole thing. I have not yet attacked the problem from the new light, but it would seem that we have a tangle to undo. Surely he is wrong in his conception of *Masdevallia Livingstonii*, but you will remember that you and I probably know more about this species than does anybody else. PLEASE do not take this matter up with Schlechter until I have had an opportunity to read his paper. Such things are best attended to from this end where we are on the watch for critical work.

We sail on the *Heredia* from Havana late in February and expect to have enough time in Panama to pay you a visit. We must reach Honduras by March third. I am sorry that my ^{time} ~~my~~ does not allow of an expedition with you, but I feel that Panama is in good hands and that I can go to new fields more profitably.

I sincerely hope that you have discovered *Masdevallia Livingstonii*. Coax it into bloom and treasure it like a child.

Some Lankester species arrived last week via Kew Gardens. I found several new things among them and these are already in press and a copy of the paper will be sent to you just before I leave for the south on February first. The next number of the Schedulae, by the way, will prove interesting reading for you. I am anxious to keep this little journal coming along at frequent intervals. I have big plans for its development and I believe we can make it a most important addition to the literatuse of Orchidology. Just think what the next number should be if I am able to devote its pages to the orchids of Honduras or to an account of my studies there.

I do not believe that you have scratched the surface of Panama. There are so many things that you seem to have missed entirely! I am looking for as many new things as Schlechter seems to have found among your collections. I am afraid, however, that some of Schlechter's species must come tumbling down unless he has made sweeping revisions in the published paper. By this time you have undoubtedly realized the truth of my surmises as to the methods of hasty determinations. ~~to make any of the determinations~~

If you will turn back to some of my earlier letters to you, you will find that I was not far from the truth as to the simplicity of making determinations for temporary effect. However, the past is the past, and some of us dont see the glass in our houses. We throw stones with impunity. You must bear in mind, nevertheless, that the art of determining orchids is not in the realm of ^m ^{to} ~~immunity~~ /error.

I may not write again before departure.

Yours sincerely,

Ⓐ

Jan. 31. 1923

Dear Mr. Powell:

I leave ~~for~~ at 10:00 clock
for N. Y. I enclose ^{\$}200. I am
Panama Canal 9%.

I must not dwell on our
interests now. There is no time

John. Arch. 3. went to you

yesterday.

Yours Truly

355 Commonwealth Avenue, Boston, Mass.

April ¹³ 9th, 1923.

My dear Mr. Powell:

I have reached home at last. I take this opportunity to enclose check for three hundred and fifty dollars on account of our field-work program. Perhaps you will let me know how far this carries us and inform me of any let up that may come as a result of weather conditions.

It is needless to tell you that I am overwhelmed with work and that I see no end to what I have to do. On my return to Boston I found over one hundred Lankester specimens sent for determination by Kew. This forenoon about seventy specimens came from Lankester directly here. I am already pushing ahead with the manuscript for Sched. Orch. 4. I hope to get this out in time to avoid the confusion which Scheelechter's proposed paper on his Costa Rican orchids would be apt to create if he antedates me. In Lankester's sets I have found some good things: one new genus I think which I am naming in honor of Lankester. I am still working at this.

Perhaps you think I have neglected C.W.P. But that is not so. I have identified most of your Garden material and the new things will appear in Sched. Orch. 4. Here is a list.

- 267 *Oncidium confusum* Reichb.f. tentative determination.
- 268 *Masdevallia attenuata* Reichb.f.
- 269 *Bulbophyllum vinosum* Schltr.
- 271 *Epidendrum amandum* Ames sp. nov.
- 272 *Stelis inaequalis* Ames sp. nov.
- 274 *Pleurothallis Brighamii* S. Watson
- 275 *Pleurothallis Brighamii* S. Watson
- 273 *Masdevallia panamensis* (Schltr.) Ames n. comb.
- 278 *Cryptophoranthus Powellii* Ames sp. nov.
- 277 *Pleurothallis hamata* Rolfe ex Ames.
- 276 *Maxillaria* still under consideration.
- 270 *Oncidium* without leaves.

Schlechter in his last letter to me takes on a querulous mood. Now that the shoe is on the other foot it pinches him a bit. He is disturbed because of *Schedulae Orchidianae*. He is at a loss to know how to overcome the lack of types. He says that I have records of everything of his, but that he has nothing of mine. He wonders how he can get on with his work on *Stelis* now that I have published a number of new ones from Costa Rica.

I hope your Chiriqui trip turned up some good things. It will be such a source of joy to have the types here! We must keep busy and pile up such a herbarium that the Central American flora will be ours forever.

I did not take the trouble to send Honduran plants to you for the simple reason that I found almost everything in flower and was able to determine most of the species in the field. I think for the present that it will be best for you to concentrate on the Panama orchids. They will take up enough room in your garden to keep you pretty busy. And there will be no chance for confusion.

Even if you use plain sheets of tin in your press you will find that the moisture does not penetrate from one specimen to the next. Heat, however, is the great secret.

Your *Epidendrum lorigolium* is surely nothing but *E. imatophyllum*. I am devoting a page to this species in Sched. Orch. 4.

I must drop this letter now, as I want to push ahead with my work on Lankester's material

With the best of good wishes,

Yours sincerely,

Charles C. Smith

355 Commonwealth Avenue, Boston, Mass.

April 23d, 1923.

My dear Mr. Powell:

Through an upset in my conception of the passage of time, caused by the unsettling influence of home-coming from a long absence, my last letter to you was wrongly dated. It was written on April 13th, not on the 9th. Please make the necessary change on your copy.

The manuscript for *Schedulae Orchidianae* has at last reached the printer's hands. It will contain forty new species from Central America and some critical notes that will be of deep interest to you. The new species are chiefly from Lankester. There is a new genus, too. This I have named *Lankesteriella*.

This has been a profitable week for the herbarium. I am now incorporating a large package of duplicates from the Reichenbachian Herbarium recently received from Vienna. Most of the material represents Costa Rican species, many of them from the classical Endres series!

Lankester's Kew specimens have given me a devil's own job. So many fragments! And some of the new species of *Lepanthes* and *Pleurothallis* with only a single flower. It hurts to mutilate the evidence of a new thing. But what can one do. I sincerely hope that in the future Mr. Lankester's specimens will be ample enough to leave at least a flower for posterity to judge me by. Yet I am well satisfied to have anything from Costa Rica and I am not complaining over-loudly.

I did so want to meet Lankester! I am sure a meeting would have made our correspondence more vital. In the last package I received from him I found some wonderful things. That is rare species that match Reichenbachian species in a most delight-

ful way. If he will only keep me supplied with specimens I am sure that we will soon have a complete representation of the odds and ends that have puzzled the world for a generation and that made poor Rolfe positively ill.

Schlechter writes that he has made over 900 drawings of Costa Rican orchids, that he has detected four new genera and that he will soon publish a host of new species. When he publishes this material it will be necessary for me to assimilate it. In the meantime it will be impossible to give Mr. Lankester such prompt ^{to} terminations as I have been able to give him up/this time. It is really exasperating to have the constant feeling of hurry put into your work caused by another man attempting to take possession of your field of present effort. It is altogether too bad that we can not discourage the German invasion of Central America. As it is I am afraid that Schlechter's Costa Rican paper will come out before *Schedulae Orchidianae* 4 and reduce a number of Lankester's new things to the realm of synonymy.

I am looking forward with intense impatience to the day when your trophies from Chiriqui will arrive. Surely you must have found some additions to the list of your Panaman orchids. In any event I hope this expedition will prove that your eye is open for the tiny things that at present are so rare in your set.

Make every possible effort to obtain the use of artificail heat. Heat is the great secret. It is worth going far to get. It makes the preparation of orchid specimens a simple thing. It gets the material into the herbarium quickly/ A week at most ought to find the fleshiest things dry. Just think of it: I did not have to change a drier in Honduras afetr I got access to the boiler room.

Mrs. Ames has made two wonderful plates for *Schedulae Orchid-ianae* 4. One of these shows *Epidendrum Lankesteri*, a truly remarkable thing among the Central American species of *Epidendrum*, but unfortunatley incomplete and only represented by a fragment in the Kew Set. I hope we can hold this even if Berlin comes out ahead of us. I have never seen anything just like it. I would give much to see the complete plant.

I am beginning *Schedulae Orchidianae* 5. I do not know when it will be ready for press, but I hope soon. Then I am working on my illustrated work on the Central American Species of the Genus *Stelis*. My ambition is to figure a flower from every species. For this purpose I have assembled material of the greater part of Reichenbach's types thanks to the Vienna authorities, and I have all of the Lindley types, thanks to Kew. And I believe all or nearly all of Schlechter's types. The only disturbing element here is word from Schlechter that he has about twenty new species from Costa Rica! If you love me, go after *Stelis* and get flowers in alcohol to elucidate the dried specimens. I have nearly finished the illustrations for a complete representation of the Mexican species of *Epidendrum*. Next I intend to take up Central America south of Mexico and illustrate all of the species. Here again you can help. If you really do have a friendly feeling for me, go after *Epidendrum*. In the meantime let us work faithfully toward a critical revision of the orchids of Panama. This will be worthy of my beloved "ORCHIDACEAE". Fascicle 9? I hope so. After this effusion you will be surprised to remember that I am still pushing ahead with the orchids of Central America for Dr. Standley's *Flora of Central America*.

This summer I must find time to work up my Honduran orchids. These will make another issue of the *Schedulae*.

There are six large packages of Philippine orchids on the table unopened! From the Field Museum, Chicago I have a package of Venezuelan orchids to name up. Do you realize that there is a well marked limit to what one man can do?

I have recently looked through your "field " specimens. These arrived during my vacation in Honduras. They look exceptionally well, although I was not conscious of new species as I turned them over. In fact many of them seemed to have been named by you.

I have a suspicion that my Epidendrum benignum published in Sched. Orch. 2(1923)26 is the same thing as Epidendrum subpatens Schltr. published in Orch. Powell. My description appeared on January 6th, Schlechter's on December 30th. Just a week apart.

This is a long letter, but I think you will have found some profit in it if you have taken the time to read it through.

Mrs. Ames and my daughter Pauline join me in sending to you and yours the very best of good wishes.

ANCON & BALBOA.

Mr Powell, of the Orchids, who has been spending sixty days' vacation up in Chiriqui in search of new and rare species of his loved flower, has returned crowned with most gratifying results, as he made a collection of over a thousand orchids, the most wonderful assortment it has ever been his fortune to gather. He is now very busy getting them in good shape.

SPORTS

play when Missouri's rifle team

will write in a day or so. Am awful busy
with plants & specimens.

Balboa, Canal Zone, Panama.

April 23, 1923.

My dear Dr Ames:

I am sending you by registered parcel post today
two packages, in one large package, unmounted specimens.

I am also sending you a package of mounted spec-
imens as follows:

No	19	Coryanthes Hunterianum	Schtr	N.S.
	32	Gongora aromatica	Reich.f.	
	88	Mormodes igneum	Idl	
#	140	Lycaste brevispatha	Reich.f.	
	148	Encyclia atropurpureum	(Willd)	Schtr
#	178	Odontoglossum Powellii	Schtr	N.S.
#	179	Sarcoglottis Powellii	Schtr	N.S.
#	233	Epidendrum turialvae	Reich.F.	
#	273	Masdevallia	additional	
#	279	Pleurothallis		
#	280	Epidendrum		only 1 plant living
	281	Epidendrum		
#	282	Pleurothallis		only one plant
#	283			
#	284	Stelis	3 forms	only one plant
	285	Stelis alba		only one plant
	286			only one plant living
	287	Epidendrum		

Those with a #, alcoholized flowers were sent you several days ago.

I feel sure that you will find some interesting things in the lot.

XXXXXXXXXXXXXX

I have been too busy since my return, trying to save my plants from
my recent trip to Chiriqui, to be able to prepare the tickets for
the unmounted specimens, my daughter not knowing them well enough
to essay it. Only finished up the mounting of the plants on Saturday
afternoon, and Sunday morning I began on the tickets for specimens.

Sincerely yours

C. W. Powell

P. S.

I have no more bottles, except the very small ones, and I have
no containers at all. Will you kindly send me some right away, as
I wish to keep up the alcoholized specimens.
I am also out of the cover sheets for the mounted specimens,
will you kindly return me the old ones heretofore sent you. They
can be used over again many times.

Compare No 284 A. with No 232 Stelis distans - sent.

Balboa, C.Z. Panama.

April 29, 1923.

My dear Dr Ames:

I have your letter of 9th, which arrived here on April 26th, after having been delayed so long because the Ship on which it was dispatched from New York made calls at all of the Haytian ports on its way down.

Please accept my thanks for the enclosure of check for \$ 350, which has been allocated as follows:

Payment of man and some expenses to Apl 20, he having gone out but little during my absence as my daughter required his assistance in pressing and drying specimens and care of garden \$ 55.00

The balance to be applied to the payment of his wages and expenses, estimated to carry them up to Sep't 1st \$ 295.00 possibly to Oct 1st.

As the rainy season will begin now in a short time he cannot be so active in the woods as in dry season, but his services can be utilized in the garden and in preserving specimens, to advantage. However, we have planned to make an active canvass as possible in search of terrestrials, as they only show during the rainy season being almost invariably annuals, and can only be found during that period. At any rate you need not send me any other funds before I write you that I am out.

There will be no let up in activities because of the rainy season, as I forestalled that by my "storage for flowering" scheme; and, as I have the plants in the garden, I will catch them as fast as they flower. At the same time he will, when out, keep his look out for flowering plants of the Epiph type.

You were very fortunate in getting the boilers as dryers while in Honduras; with me it has required from 2 to 6 weeks to dry out plants, according to bulbs and thickness of leaves, even though they have been scalded before laying down. Catching an idea from your boiler experience, on yesterday I rigged up hangers from the ceiling over my cook stove in the kitchen, where I will keep the dryers hanging in the heat all day. Examination today shows that the idea was good. I may further develop it.

I rejoice that you have the volume of Lankester specimens, and so anxious am I that you forestall all competition, that I suggest if necessary, that you defer publishing my determinations and devote the space to those of Costa Rica. We contrall Panama and no fear of interference, and the weak place is C.R. Rush it. I will write Lankester on this.

As to No 267 Oncid, tentatively determined by you as O.confusum, while the name is appropriate enough, before you close the matter, I would call your attention to my Nos 161 O.confusum, R&ch.f. and

No 177 *O. cerebriferum*, Reich.f. of Schlecht's determinations. These two numbers are similar in plant formation, and are not at all like No 267. Again the Nos 161 & 177 are Epiphytic, while No 267 is always found growing in the ground. It will grow Epiph but does not relish it and does not thrive. You will remember that its bulbs looked like small *Peristeria elata* bulbs. You saw it growing while here.

Of No 170 "Oncid without leaves" - when you were here I explained to you that I only had two plants of this, and you knew that to cut out a plant specimen usually ruins a plant for further use, you made a drawing of one of the plants in your note book (I think there) as a substitute. Look it up, but if necessary advise me and I will send on the vegetable parts.

I have already sent you a copy of a letter I wrote Schlechter. He was rather rough in his remarks, which I did not relish, so I thought it best to write him at once.

My Chiriqui trip was the joyous assembling of the most wonderful lot of plants. I estimate that I brought home with me something like 12-1500 individual plants. Of the new ones I cannot say at this time as in this volume of plants it is not possible to form an exact idea; but I am sure that 50-60 in number of Sp would be conservative. I was particularly struck with some of the new *Epidendrums*, with the *R strepias* (5 sp of them) one of which is about the size of *Pleurothallis Powellii* of Schlechter. Of the *Pleurothallis* and *Stelis* I procured a large number of Sp, many noteworthy in size and shape. Many other new species which I can only at this time guess at. It was remarkable the few plants I found in flower. I made specimens of all that I saw. The natives told me that the season of flowers was at least two months behind the usual, because of the excessive rains up to late in February. In fact it rained often while I was there in March; a cold drizzling rain from the North east. These were of short duration, but were extremely disagreeable, when you were caught in one of them. The mortality in transportation of plants was not very large, but I lost some new species which I was looking forward to with keen anticipation.

I will here make some remarks anent Warscewicz's statement that there was a luxuriant foliage above the 7000 foot line. It is absolutely non existent. Only volcanic rock and stunted sage grass. This is for the Panama or East side. On the Costa Rican or west side I am told that there is vegetation and perpetual rains. Warscewicz may have allowed his Barometer to get out of order or measured his height by his feelings, after the climb from 4000 (his camp) to 7000 where the foliage stops. It is rough and disagreeable climbing. I made it this trip and only procured a few plants between 6-7000 feet. I am afraid of their living at Sea level, but am going to give them a good try. It would have involved a ride of a hundred miles for me to have gone around to the Costa Rican side owing to the steep gulches running out from the East side, and I did not have the time for it.

Very sincerely yours

C. W. Powell

I had 4 men & 12 boys (4 & 16 years old) working for me while in the Volcan Country. The boys will not go up in these high mountains unless with a man. 30 boys formed a gang of 1 man & 3 boys each. The boys are the best collectors as shown by their bags.

lation to the other parts than in your flowers, this giving a very different aspect. The genus *Oncidium* is in crying need of revision.

Mr. Maxon is about to set out for Nicaragua and Dr. Standley is planning to go to Costa Rica ^{or} ~~MX~~/western Honduras. This looks like business. If we can only keep up the pace I am sure that we will have a stranglehold on Central America orchids before many years have passed. I am looking to you to do a good job in Panama. I look to you for more than one reason. But my big reason is that you have not turned up your share of *Lepanthes*, *Pleurothallis* and *Stelis*. There must be a whole barrel full of these gems awaiting your eye.

Search the region round Culebra. If *Masdevallia Livingstoneana* is extant we ought to find it somewhere near there. That is where Roezl got it.

Guests are coming in for supper. Please pardon this sloppy typing and slipshod expression, but I have just raced over the keys and I am only an indifferent hand at the touch and go system on the type-writer.

Sched. Orch. 4 will go to you on Friday. First mail out.

With the best of good wishes in which Mrs. Ames joins,

Yours sincerely,

355 Commonwealth Avenue, Boston, Mass. May 4th, 1923.

My dear Mr. Powell:

Sched. Orch. #4 was placed in the mail for you this afternoon. I sincerely hope that this issue will please you and serve a useful purpose in your reference library. I am afraid it is a bit dull as a reading proposition, although there are one or two pages that should have significance for you.

This morning your letter of the 25th, April came in. I immediately inserted the enclosures in the herbarium marking each envelopp with the date of deposit. I find that "do it now" is the best of our modern proverbs in herbarium matters as a postponement is sure to lead to future confusion.

Your letter to Schlechter is both fair and reasonable. I approve of its lines and I congratulate you on its logical sequence. Although Schlechter may be pardoned for a great disappointment at the turn affairs have taken, he is thoroughly German in his point of view. He is oblivious of everything except his deep desire to have the Central American orchid flora within his eager grasp. And this notwithstanding the fact that another man is engaged in a monographic treatment of the orchids for the United States National Museum. I say this because there is a certain amount of etiquette connected with such matters under certain circumstances. If he persists in his efforts there is sure to be a great amount of confusion created which will not benefit science one bit. Even now I am not sure but that an early mail may bring in his promised work on Costa Rican orchids and reduce to synonymy many of my proposed new species.

Now, to change the subject: I picked up a bottle today numbered 181 with the contents designated as Ionopsis utricularioides. There is surely some mistake here, as the flowers are those of Comparettia, probably of C. falcata Poepp. & Endl. Schlechter does not give this

May 4, '93. page 2.

genus in his enumeration of your collection and I do not find it in your manuscript list of the species Schlechter determined for you. I only have this species from Guatemala and the West Indies. It has been reported, of course, from Costa Rica. I do not find it in the Kew Set of your specimens and you have not sent it for Herb. Powell. Please explain this specimen and if possible make herbarium specimens for me when the plants bloom again. You can recognize this species by the peculiar spur like lateral sepals that hang down beneath the labellum. [See letter of May 6th. for explanatory remarks]

I had already detected the mixture of numbers in the *Stelis* species. I wrote to you about this yesterday and gave you my determinations and views.

The specimens listed in your letter of the 23d have not yet come in, but I expect them any day. These, you may be sure, will be most welcome.

The *Epidendrum* with fleshy flowers sent in mailing tube appears to be new to Central America. When the specimen for the herbarium arrives I will study it and publish the name in Sched. Orch. 5. There may be some other new species among the unnamed material. These will also receive attention.

Mailing-tubes, bottles and Manila covers will be forwarded tomorrow.

I think it may be well to illustrate the new *Epidendrum*. We can make an interesting ~~plate~~ plate in a few days.

Keep on the look-out for *Stelis* flowers. Have little bottles ready for these fellows. And acquaint the Indian with the genus.

Everything is running smoothly. It is up to you to prevent me from taking a vacation this summer.

With the best of good wishes,

Ca

355 Commonwealth Avenue, Boston, Mass.

May 5th, 1923.

My dear Mr. Powell:

Two packages of specimens arrived this noon. I have examined the mounted set and now take this opportunity to report as I imagine you are always anxious to know what you have turned up.

273. *Masdevallia* regarding which I have already written an opinion. This additional material bothers me considerably. As you see this plant in vivo do you think it is the same as your 223, or do you regard it the same as your 78? Structurally it goes into M. panamensis, but it has an aura that seems to differentiate it. I am really puzzled to know just what to do with this plant. May I rely on you to study the two numbers critically for any differences that lead you to believe that two species are under consideration?

279 This is excellent material of Pleurothallis wagneri Schltr.

280 Epidendrum bisulcatum Ames sp. nov. This is near E. vieji Reichb. f., but quite distinct. I have yet to run it through the South American range before publishing the description. It is new to Central America. The specific name alludes to the the two tiny grooves in front of the basal calli.

281 Probably the same as 280. I think it is just a more robust state. But I intend to study it some more.

282 Pleurothallis chiriquensis Ames sp. nov. *homonym = P. alpina* sp. n.

I have eliminated everything from Central America. It is near P. vittata Lindl. but quite distinct. To-morrow I will eliminate the South American species. In the meantime we may take up the proposed name. It is surely a joy to work with your material. The additional flowers give one an opportunity to study a species with some degree of pleasure.

283. Ornithidium fulgens Reichb. f. ex char. I only know this from the original description. I have the same thing from Lankester. I intend to get sketches and a photograph of this species from Vienna, in the meantime you must do what I am doing, regard the determination as reasonably correct.

284. Stelis crescenticola Schltr. Again I must congratulate you on the material you place before me. The flowers in the pocket were just as good as those in spirit! Just the right pressure to make a perfect specimen. I have written to Washington for the duplicate type of this species. I want to make sure that I am right in reducing S. Isthmi and S. praemorsa. Although you record color variations the floral structure is identical and one would strain a point to make more than one species.

285. Stelis crescenticola Schltr. Call it var. alba if you need a garden name. For scientific purposes it is simply a color variant of the species named.

286. Trizeuxis falcata Lindl. I believe this is an addition to your list of genera and an addition to the flora of Panama. Rather a lovely little thing. But one needs a lens to see its beauty.

287 A scientific abomination! In my horticultural experience I do not remember to have seen this form. Call it Epidendrum atropurpureum var. laciniatum. I will have to study this. If you want to know why

3 May 5th, '23.

i call it a scientific abomination, simply imagine the difficulties it presents to us when we attempt to make a key to the species of *Epidendrum*. This thing comes in as an exception to natural relationships, because it should vary in anything except the margin of the labellum. This would be a pretty thing to introduce to horticulture.

#####

In numbering your field material do not use a new number for every folder. I noticed that you did this with *Trigonidium*, a *Sobralia* etc.

Use the Ridgway color standards if you have not been doing so. Lankester uses Ridgway consistently citing plate numbers.

Ornithocephalus diceras is Lindley's *Ornithocephalus bicornis*. I am taking this under consideration in Sched. Orch. 5.

Getting determinations off to you within twelve hours of receipt of material is not a rule of this establishment.

Mailing tubes etc. went off this noon as promised.

When we come to the point of making illustration for the Orchid Flora of Panama the specimens in alcohol will be a grand thing.

Odontoglossum Powellii looks too good to be true!

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass. May 6th, 1923.

Dear Mr. Powell:

Just a few lines to tell you that I have worked nearly all day on your *Pleurothallis* 282. Owing to the fact that Schlechter's *P. chiriquensis* is as yet missing from the Powell set I did not realize that the name was preempted until I began to get down to brass tacks. Now for the story: 282 is to be known as *P. alpina* sp. nov. in allusion to the high altitude at which you found the plants. The nearest affinity is *P. sicaria* Lindl. from the island of Trinidad. It is painfully close to Lindley's species but differs sufficiently to be recognized as a geographical departure that may well be kept distinct until we have a more thorough knowledge of the intermediates. At least I intend to describe the plant and until we learn more about it I think you may safely regard it as a distinct thing. The additional specimens in your field collection simply substantiate the differences that I think exist.

The fact that such a close match is found in Trinidad will give you some idea of the extreme care we must use in our determinations. We cannot take for granted that endemism is our friend in our attempts to get at the bottom of things.

I am sorry to cause you trouble, but, until one has searched the records pretty well it is six to one that a name which seems perfectly safe will be found already in use when we approach the genus *Pleurothallis*.

I am still of the opinion that the little orchids are getting away from you.

Yours faithfully

Ref. remarks regarding bottle said to contain *Joseph's* flowers. I had one of these out after writing to you and find that the genus is *Rodriguezia* and the species *secunda*, probably var. *panamensis* Schlth.

May 7, 1923. Numbers needed from C. W. Powell to complete record of Schlechter's new species published in *Orchidaceae Powellianae Panamensis*.

- 20. *Cycnoches guttulatum* Schltr. ~~sp. n.~~ flor. fem. ----- In Kew Set
- 23. *Diichaea Powellii* Schltr. sp. nov. ----- In Kew Set
- 29. *Epidendrum Hunterianum* Schltr. sp. n. ----- In Kew Set
- 111. *Cycnoches Powellii* Schltr. sp. nov.
- 124. *Maxillaria panamensis* Schltr. sp. nov. ----- In Kew Set
- 141. *Epidendrum platycardium* Schltr. sp. nov. ----- In Kew Set
- ✓156. *Coryanthes Powellii* Schltr. sp. nov. ----- In Kew Set
- 159. *Cycnoches pachydactylon* Schltr. sp. nov. ----- In Kew Set
- 173. *Cycnoches stenodactylon* Schltr. sp. nov. ----- In Kew Set
- 185. *Matylia gracilisifolia* Schltr. sp. nov.
- 227. *Pleurothallis chrysogonensis* Schltr. sp. nov.
- 245. *Pleurothallis Hunteriana* Schltr. sp. nov.
- 250. *Epidendrum psabiflorum* Schltr. sp. nov.
- 257. *Epidendrum fuscopurpureum* Schltr. sp. nov.

355 Commonwealth Avenue, Boston, Mass. May 8th, 1923.

My dear Mr. Powell:

I am taking the few minutes that must pass before dinner is ready to answer your letter of the 29th April ~~XXX~~ received yesterday, and to tell you ~~XXXX~~ about the successful arrival of the mailing tubes that brought Masdevall #273, *Epidendrum subpatens* and *Elleanthus Bremesii*.

You refer to *Oncidium* #267, tentatively named by me *O. confusum* Reichblf, and call attention to #161 determined by Schlechter a *O. confusum*. Your 161 in the Kew Set and 161 in Ames Set are two different species. The Kew specimen is not *O. confusum* Reichb.f. The flowers of this number in the Ames set, from tip of lip to tip of upper sepal are 1.8 cm. long. In Reichenbach's type the flowers measured similarly are 2.5 cm. long. The wings of the column in your 161 are totally different from the Reichenbach type. You also refer to your #177. This is not *O. cerebriferum* Reichb.f. I consider that your #267 is nearest of all ~~of~~ these to *O. confusum* Reichb. f. I realize that these comments are destructive rather than constructive. But you may be sure that I am following up your *Oncidium* tangles assiduously. *Oncidium* problems are awful.

You refer to your *Oncidium* 170. My sheet is numbered #270. In the herbarium I find the note I made in your garden. This was for the plant numbered 164. I worked on your 270 this afternoon. It belongs to Section *Aphanobulbia*, and seems to be the same as *Oncidium kymatoides* Kraenzlin. This species, however, was originally collected by Tuerckheim in Guatemala. It belongs to the Subsection *Miltoniastrum* to which Kraenzlin only admitted thirteen species. The nearest thing to it besides *O. carthagiense* is *O. luridum*, a species that you do not seem to have turned up in your rambles.

May 9th, 1922.

I think now that I can settle the Masdevallia Livingstoneana question pretty definitely. Mrs. Ames is preparing a plate from the alcohol specimens and will show the range of forms. This plate will come out shortly in Sched. Orch. 5.

I wish I could spend the rest of my time until June on Lankeser^t material. But I have finished up everything. I am waiting impatiently for him to send me another bundle of specimens. He ought to have some ready for me pretty soon.

I note what you say about additional funds. I will await your pleasure in this matter.

What a joy it would be to have the opportunity to examine your Chiriqui specimens in your company. I surely wish I were in Balboa just to help you at your task.

The following numbers are needed to round out your set so far as new species are concerned. Nos. 20, 23, 29, 111, 124, 141, 156, 159, 173, 185, 227, 245, 250, 257.

I am expecting many new things from your Chiriqui expedition. As I look the ground over I do not believe you have begun to get all the new things.

I hope you will find some terrestrials during the wet season. Be sure to teach your assistant what these things look like.

My time is up.

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass. May 21, 1923

My dear Mr. Powell.

A large package of specimens has come to hand. also several mailing tubes with welcome contents. It would be difficult to convey to you in words the feelings of joy and satisfaction which your attention to my needs brings forth. The mailing-tube material, when accompanied by herbarium specimens is of the utmost value in the study of your Panama orchids and will serve a wonderful purpose when I come to the point of illustrating the species.

Mrs. Ames pulled me away from work over the week-end, but I took along the interleaved copy of Orch. Powell and began to fill in the gaps which you have yet to fill in your intensive survey of the Panama region. You have missed so many old things that I begin to believe you have not begun to get hold of all the new species that await your searches. There must be numerous genera yet for your prying eyes to detect, especially genera that are characteristically terrestrial and elusive. You have yet to add *Malaxis* to the Flora of Panama, a genus that occurs north and south of you. Please get after the humus loving orchids. A glimpse at some of the green and silver leaves of *Erythroides* would give you joy for a month.

Schedulae Orchidianae 5 is at last ready for the press. I ought to get it off to-morrow. Then it will take about ten days to issue it.

Mrs. Ames has reminded me that I worked like the devil all last summer, that I kept constantly at work night and day all last winter. That I used up much vitality in Honduras and Yucatan, and that unless I take a little time off this summer I will grow stale and useless. What was it that

Paul Jones said about just beginning to fight? If you remember, you will know what my reply is to any suggestion that I let up on the Central American orchid campaign. I have just begun to get going.

Lankester has written that he will keep after the Costa Rican species. I have just sent him another supply of drying papers and a bundle of mailing tubes.

Yours faithfully,

N.B. An erratum slip will be sent to you in a day or two. By some unaccountable muddle the synonymy of Epidendrum alanjense got mixed. This was discovered before general distribution, so that little or no harm will come of the slip.

Another note that will interest you. I have just had a letter from Kraenzlin in which he informs me that the original Roezl flowers of Masdevallia Livingstoneana were so poorly dried that they are useless. Notwithstanding Reichenbach's second description based on flowers from the von Fürstenberg collection, the water-color sketch must be regarded as the type. Mrs. Ames has made a very clever copy of a part of the sketch and this will be published in Sched. Orch. §.5.

Kraenzlin has sent me a copy of the description of M. Livingstoneana as it will appear in his monograph. I am afraid he found the Reichenbach material pretty unsatisfactory.

O.A.

North Easton, Mass. May 28th, 1923.

My dear Mr. Powell:

I have moved to the country for the summer, but as I intend to visit my Boston laboratory at frequent intervals, dont make any change in your manner of addressing me.

I have received some interesting material from you in the way of specimens in alcohol. I will take up only one of the species as it will be best to wait until the herbarium sheets arrive before discussing the others.

Nos. 151 & 187, sent as *Epidendrum pachycarpum* Schltr, seem to me to represent *Epidendrum ionophlebium* Reichb.f. I wonder if these ^{flowers} ~~plants~~ simply represent your own identifications or if they came from plants ^{of} which Schlechter received specimens. *E. pachycarpum* as represented by the type is a much smaller flowered species comparable to the herbarium specimen already sent as *E. pachycarpum*. I find that Schlechter distinguished *E. pachycarpum* in part from *E. ionophlebium* by the smooth callus on the base of the lip. The bottled flowers show a distinctly hairy callus. They also show much larger parts and resemble Reichenbach's type of *E. ionophlebium*. Examine your specimens as the plants bloom and ascertain what the status of the callus really is. I have had a suspicion that Schlechter made a questionable diagnosis as to this character and that *E. pachycarpum* is simply a small flowered *E. ionophlebium*. Here is a place for Powellian aid.

I have examined all of the *Masdevallia* material and I am convinced that as to *M. Livingstoneana* we simply have a variable species. You will be delighted, I am sure, with the manner in which I have disposed of this puzzling species when Sched. Orch. 5 reaches you. The

plate that clears up the situation is really a dandy. Your 78 is just what we thought it was, pure *M. Livinstoneana*. The petals and labellum are in every way the same as those of the other specimens. Schlechter was quite right in his conclusions although I think he guessed as to the type of *M. Livingston-eana*. Our mistake came in knowing what the type was before we discovered that the species shows an astonishing range of variation. But the matter is clear now, thanks to your success in finding an abundance of material.

The *Stelis* specimens are very welcome. I will report on these just as soon as the herbarium specimens arrive. It would be unwise to examine them until I know just what the habit is like. This applies also to the *Epidendrum* which you think is different from any of the other species in your garden.

I am now mounting up the Lankester collection. This is to be a strong addition to my representation of Costa Rican species. His *Epidendrums* are mighty good. He reports that *E. exasperatum* grows to be ten feet high when in perfect condition of growth. From herbarium material you would never imagine such a thing possible. Here again we have the crying necessity for complete field notes.

Unfortunately your letters are not by me, so I must leave until another time answers to any questions you have asked.

Yours faithfully,

Charles D. Coker

June 4th, 1923.

My dear Mr. Powell:

Yours letters of May 20, 22 & 23 are before me. I found these when I went to my Boston laboratory this afternoon. I also found a package of most welcome specimens and several containers with alcoholic material for study. I did not boil up the only flower of 288 as I felt sure that it must be Pleurothallis arietina Ames, a species described in Sched. Orch. 4. It is strange that this rare species should turn up in two collections received within two months. It would indicate that the Chiriqui flora merges with that of Cartago, Costa Rica. I must delay a report on the other specimens as I am a bit on the down side of health and will not return to Boston until late in the week.

The Epidendrum alaniense muddle has already been cleaned up and an erratum slip went to you several days ago. I find that error is lurking near the man who attempts to hasten his scientific work. You must realize that the recent Sched. Orchs. were prepared under pressure. No. 5 comes off the press to-morrow.

Your reference to F. Sander and Masdevallia Livingstoniana interests me. But your surmise must be wrong. Years ago Mr. F. Sander took a fancy to me and one day at his nursery in St. Albans presented me with his herbarium. Kraenzlin has assured me that the original Roezl flowers are in the Reichenbach Herbarium, but that they are worthless because poorly preserved. Anyway the problem is solved. Unless you really wish it, I will not send a specimen to the Sander nursery as the old gentleman is dead and as his sons would have no memory of Roezl's plant.

My reference to Odontoglossum Powellii was simply to place stress on the fact that such a lovely thing had escaped notice previous to your discovery of it. I have not attempted to identify the species, but when I do I most certainly hope that it will prove to be a perpetual reminder of Powell and not a synonym. There is no reason why Schlechter should have slipped on this.

Your explanation of the Oncidium mix-up is probably the correct one.

Your reply regarding the missing numbers is reassuring. I am quite ready to wait for the plants to bloom.

As soon as possible a check list of your bottled goods will be made up and forwarded to you.

The gold beetles and pots came with the other materials. You may be sure that Pauline will be delighted with your note regarding the beetles.

The Hexadesmia question will be answered on my next trip to Boston. Isn't this summer vacation habit a nuisance? I would so love to be able to go down-stairs and answer your question at once.

I do not understand the lack of mailing-tubes. I will send an additional supply at once with large size bottles. We must keep this alcoholic material coming along, because without it we cannot hope to make satisfactory plates of the Panama orchids.

I have written this letter after a long hard day, so please pardon any omissions.

Yours faithfully,

Everybody joins in send/^{ing} to you and your daughter the best of good wishes. They are here now and have expressed delight at the thoughts of the visit to Balboa.

POSCRIPT.

I have just been studying Stelis #234 & 232. There is no defence for the recognition of two distinct species. The apical portion of the labellum in the bottled material of both numbers is very fragile and breaks off easily. A poke of the needle will convert *S. Isthmi* into very good *S. praemorsa*. I am afraid that Schlechter examined a flower that was injured when he described *S. praemorsa*. It would seem that the age of the flowers and other things must be considered with regard to your #234 & #232. We must allow some opportunity for normal variation. If I had any doubts before about the two species under consideration, I have none now.

O.A.

June 7th, 1923.

My dear Mr. Powell:

I enclose a check list of the alcohol material which one of my assistants has prepared. It would seem ^{there} that are some blunders in the labels, but I think these are so few that you may disregard them. Our 93, for example, is *Epidendrum tessellata*; 17 is *Epidend. dendrobifolium*. Perhaps your letters account for some of these, but until I go to Boston I cannot be sure that they do. We are calling 290, 291, and 293, *Stelis perplexa* Ames. (Cf. Sched. Orch. 1). It is strange that this Guatemalan thing should reach you. For the present at least you may call your plants *S. perplexa*. I have the following numbers in addition to the printed list. 164, 290, 291, 293, 292, 282, 275, 279, 274, 133, 273, 152, 284, 289, 268, 273, 286, 84, 283, 280, 17, 15, 172.

Sched. Orch. 5 came off the press yesterday. I suppose a copy was forwarded to you with the first flight. This is a rule of the laboratory. I think the little thing looks pretty well and is much improved by having illustrations in the text. It is our intention to use illustrations freely in the future. I think we are putting together some useful information in this gatling-gun periodica¹. At least I try to run in critical notes that make each copy something more than a dry list of new species. For the genus *Epidendrum* Sched. Orch. has become indispensable for students of the Central American Flora. You will be surprised to see how my researches have changed the ge;-

nus from the exposition published by Schlechter in his Central American list. Anyway 167 pages from January to June means some work, good or bad. And the eight plates make up for a few mistakes. Your *Epidendrum bisulcatum* came out pretty well. Perhaps the simplicity of these plates does not appeal to you, but we find that for zincotype reproduction on the regular paper of the book, that they are wholly satisfactory. As a matter of fact, their simplicity is more in accord with what scientists like. If every line means something the plates are better adapted to use in determinations. We intend to try many experiments with illustrations so that in the end Sched. Orch. will be a most interesting possession for those who have it in hand.

What do you think of Lankester's climbing *Pleurothallis*? Surely you should find some allies of this strange thing.

I think you will agree with me that *Masdevallia Livingstoneana* is at last, through your efforts and my studies, quite clear. Mrs. Ames' plate is a distinct contribution to the portrait gallery of orchids.

In *Orchidaceae Fasc. 1*. you will find in Plate 10 a pretty good guide to the general aspect of the tropical *Spiranthes*. You might show this to youⁿ man.^A

With the best of good wishes,

(C. C. C. C.)

June 8th, 1923.

My dear Mr. Powell:

Mr. Maxon has written to tell me that he has found *Stenomorphynchus* in your hunting-grounds. I have no record of this genus from Panama. It may well be a *Sarcoglottis*. After your man has seen the specimen it would be well to have him hunt for additional specimens. The species of this alliance are very scattered in distribution and one has to cover a large area in order to exhaust possibilities. In Honduras I found the species of this alliance exasperatingly far apart! I hope you pumped Mr. Maxon while he was with you and that his visit proved stimulating.

I am now getting together material for Sched. Orch. 6. I expect to have enough good stuff ready for an interesting publication, but just at present I am very hard up for Central American species. Lankester may send some material before long. In any event I may illustrate some of the rare Reichenbachian species to keep the Central American flavor in my work. It is always worth while to record the classical things and to clarify them with good plates. But one has to be careful to avoid padding.

Yours faithfully,

June 27th, 1923.

My dear Mr. Powell:

It seems ages ago since my last letter to you was entrusted to the postal authorities. In the meantime I have been busy with the twenty-fifth reunion of my Harvard Class of '98 and with a hundred and one other things foreign to the orchid realm.

I have studied your *Hexadesmia* material carefully and find that the herbarium specimen no. 229, said to have been determined by Schlechter does not agree with the description of the type. No. 3149 is nearer the type as to 3-nerved petals than 229, but I am not satisfied that even this represents *H. pachybulbon* Schltr. There must be some mix-up here. This is a case for which I have not the necessary materials to settle anything. There is no material of your 229 in the Kew Set. It would seem that you have made some mistake in your labels, or else Schlechter's description is rotten. At least I cannot make your 229 fit the description of the type. Are you sure that the material you sent to me represents the type plant or simply a plant which you referred to *H. pachybulbon*? For example, how many plants of 229 did you have in your garden? If more than one plant, are they all alive? Here is a matter for your intensive attention. I hope that you have the original plant and possess a pretty clear idea of what you sent to Schlechter.

That marvellous *Stanhopea* in a bottle seems to be *S. bucephalus*. I cannot be positive, but I think your

plant may be the Panama form described as S. Jenischiana by Kramer. This was later reduced to synonymy under S. lancephalus. Ever since my horticultural days Stanhopea has been for me a puzzling group. I never feel sure of my determinations. This is a genus for the field-botanist who lives in the tropics and like yourself is able to make observations while living with the plants. If there is anybody at hand who can paint the colors of your Stanhopea forms, sketches, no matter how crude they may be should accompany photographs and herbarium specimens.

Now, I must offer some suggestions. Don't number every specimen or sheet of specimens with a different number. When you collect four or five specimens of the same species growing close together, or make four or five specimens from the same plant, make a series of specimens and number them all alike. When you pack a number, be sure to place all of the material that represents it in a double folder with the number in the lower left hand corner. If you simply use single sheets throughout your piles it is sometimes difficult to avoid puzzling mixtures. It is customary to use a folder or double sheet of newspaper stock for each number. If there are several specimens to a number, then place each specimen on a single sheet and place the lot in a folder of newspaper.

From now on I expect to be able to handle your business promptly.

Additional labels will be printed.

Yours faithfully,

July 2, 1923.

My dear Mr. Powell:

Your letter of June 21st, was opened at the laboratory during my absence. When I went there last Saturday I found Mr. Soweinfurth packing up a miscellaneous assortment of bottles and containers which I am sure will silence your demands for a time. You may be sure that the alcoholic collection is too important to be held up by a lack of proper facilities.

The flowers of *Epidendrum Hunterianum*(?) in bottle recently received have been compared with the type in the Kew Set. They represent a different species with very much larger flowers. When you send a dried specimen I can report on this. It may be new, but of that I cannot be sure until I have complete specimens.

The box of bottles arrived safely in good condition.

Sched Orch. 5 must have reached you by now. If not, just mention the fact and additional copies will be promptly forwarded.

Kraenzlin has recently sent me photographs of *Madevallia Livingstoneana* as represented in the Reichenbach Herbarium. I think there can be no doubt but that we have settled the identity of this species properly.

Yours faithfully,

355 Commonwealth Ave.,
Boston, Mass.,
July 3, 1923.

Mr. C. W. Powell,
Ballston, Canal Zone.

Dear Sir:-

Yesterday I sent you in two packages the following:-

- 1 doz. large containers provided with Mason jars -
- 1 doz. medium sized containers provided with medium -
sized bottles (wide mouth).
- 1 doz medium containers provided ^{each,} with five 4 dram
slender phials -

I trust these will arrive safely & promptly and
that you will let us know ^{when} we can serve you. Also
I note what you suggest about returning empty mail-
ing cases.

Yours truly
C. S.

July 6th, 1923.

My dear Mr. Powell:

Just a few lines to tell you that your no. 300 is Stenorrhynchus orchioidea L.C.Rich. As this is an addition to the orchid flora of Panama I am sure that you will be pleased to have the determination promptly. As to your other specimens I am waiting for dried specimens of some and for alcoholic material of others. When I have the whole array of helps I will work out the names and report. Several of the Epidendrums appear to be new. But I am not sure that they are. I intend to include the Stenorrhynchus in my notes now being made ready for Sched. Orch. 6. As you have sent alcoholic material of this species I think it may be helpful to publish a drawing.

Please be patient with me for a month. I find that I overworked, unconsciously, during the time from June 1922 to March 1923. That is, when I came out here and suffered a let-down, I realized for the first time that I had been hitting a killing pace. Either that, or the fact that everybody told me so, brought on a distinct reaction.

Maxon has written about his visit to you. He seems to have had a profitable and enjoyable time in your garden.

Additional labels are being printed.

Yours faithfully,

July 16th, 1923.

My dear Mr. Powell:

Is not your 304 a representative of *Epidendrum latilabre*? I had the bottle that contains the specimen in hand this forenoon and it seemed to me that the flowers suggested that species pretty closely.

I have not heard from you for some time, so I suppose the Garden is keeping you pretty busy.

Dont forget the pods of *Selemipedium cfica*. If these are used as a flavoring substance I want specimens for my economic collection. This is also true, by the way, of *Vanilla pompona*. Your assistant ought to be able to get pods of this that are in their economic condition. This is important in connection with the economic uses of orchids.

By this time the desired bottles and containers must have reached you.

I have very little to report as I have been taking a much needed rest much against my inclinations. I simply keep up with my correspondence, which is always burdensome, and give determinations which are pressing. This applies to you, of course. If there are any of your numbers in which you have a special interest, the determinations can be undertaken promptly.

Yours faithfully,

July 19th, 1923

My dear Mr. Powell:

Your letter of the eighth July has just come in. When the specimens referred to in that letter reach the herbarium they will receive prompt attention. In my letter to you of the sixteenth July I referred to your 304 as probably being Epidendrum latilabre. Until I see the vegetative parts it will be safe, I think, for you to use that name. The fact that your opinion formed independently of mine places no. 304 in E. latilabre is significant.

The additional containers and large bottles must have reached you by now. An additional supply of labels will be forwarded to you just as soon as the printer makes delivery. The sample and order went out over a week ago.

Your fears for my health are really groundless. After a short rest, regular exercise and a change of occupation I regained that normalcy in the realm of health that stimulates a desire for work.

Please keep my wishes regarding Vanilla in mind.

Have you received Sched. Orch. 5. Up to this writing I have not noted a reference to it in your letters. My only fear is, that the copy sent early in June has failed to reach its proper destination.

Yours faithfully,

July 27th, 1923.

My dear Mr. Powell:

Your letters of the 14th & 15th are just here. I have examined the *Hexadesmia* species once more and I find that #229 as represented in the herbarium matches vegetatively the fragment you have submitted and the sketch of your herbarium specimen. It would seem that you have made no mistake. The trouble lies in the description prepared by Schlechter. It does not measure up to that degree of accuracy which one expects when examining co-types. Your explanation seems to leave no room for doubt as to *H. pachybulbon*. Up to the present time I have not succeeded in matching your 3149 with any described species. It may be new. But I must examine it more carefully. I will compare it with *Scaphyglottis laevilabium* following your suggestion.

As to the *Habenaria* material sent Oct. 8th, and Dec. 9th, last year, I think the specimens represent a single species. For the present I think we may accept Schlechter's conclusion. But I am anxiously waiting for authentic material of *H. metalodes* Lindl. to come in from Brazil before arriving at a definitive opinion. The point of chief interest for you is the fact that the variation in flower-size does not, as I view it now, indicate the existence of more than one variable species.

I have a set of proofs of the plates published in Sched. Orch. 5. I will send the proofs to you under another cover. As to the photographs of the specimens in the Kew Set I am unable to promise much at this time. I have several negatives from which prints can be made at once. I will locate these and send prints to you. For the balance of the set you must wait until I have found time to complete my records. This I must do before winter comes, as I want to return the specimens to Kew.

Your reference to "other forms of terrestrials" comes as a welcome one. I am burning with curiosity to know what you have in hand. I wonder if the *Habenaria* you do not know is *H. bicornis*. (cf. Orch. VII : 107). This is a species that you have not as yet sent in. Pittier found it in Panama.

I think the discrepancies with regard to the alcohol collection may be accounted for by the fact that my assistant prepared the list. He probably omitted bottles that simply bore a number. I will attend to this business when I go to the laboratory next week. I have no reason to suspect that anything you have sent is missing. I assure you that the alcohol collection is most valuable and will be of wonderful use when we come to make drawings next winter.

Mrs. Ames and Pauline send greetings to you and your daughter. In these I always join.

Yours faithfully,

J

August 3d, 1923.

My dear Mr. Powell:

I have very little to report, but the following notes may be of interest:

299. *Epidendrum* sp. I am not satisfied with the specimen. I suspect that it is undersized. The flower examined with a lens without boiling suggests very strongly *E. anceps* Jacq.

298. This would seem to be a form of *Epidendrum difforme* Jacq. I am still uncertain in my mind as to the proper treatment of this group. I have the same thing or what seems to be the same, from Guatemala.

249 *Epidendrum latilabre* Lindl.

312 *Stelis cascajalensis* Ames. Cf. Sched.

Orch 3. This determination is probably correct. Of course I only had the two flowers in a bottle to guide my mind.

315 *Habenaria bicornis* Lindl. I have the same thing from Pittier collected in Panama. This species was originally collected in the West Indies. Cf. Ames *Orchidaceae* fasc. IV. If you try to run this down in the key l.c. you will find that it comes out very easily. It is surely delightful to have alcoholic material of this. We can make an accurate drawing at last.

The alcoholic material of *Stelis cascajalensis* is worth its weight in gold. It is so gratifying to see the floral parts in their natural condition.

Yours with best wishes,

August 30th, 1923.

My dear Mr. Powell:

Your letters of August sixteenth and eighteenth are here. I read them both with much pleasure and found in them much that needed to be answered. Just at present I am unable to do much for you because the package of specimens is still in the Customs. For the first time in thirty years or more I have been called on to pay duty on a parcel of herbarium material. In this case some five dollars. Of course the whole thing is a misunderstanding and will be cleared up promptly, but I am now waiting for results.

I will get after 276 and 289 when I go to Boston next time. The *Habenaria* specimens will receive prompt attention just as soon as the package comes from the Custom House. I am just as anxious as you are for results because I am hoping that some of the unidentified species may be new and will give me material to strengthen the Central American part of Sched. Orch. 6, a contribution that already has 34 Philippine novelties in the manuscript copy. There is no use in pretending that I can do the work I want to do while I am forced to remain in the country. I am looking forward most impatiently to the arrival of the day when the family will be content to re-enter the city and take up the winter's job. I tried to lug out here enough material to keep me busy, but if I wanted a book, it was in Boston, and if I wanted to make a critical comparison with some closely allied species, I found that I must wait until I went to Boston. When I finally went to Boston, my assistants

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burdened me with questions about the Philippine List or about the proof of Standardized Horticultural Names, a work for which my laboratory is doing the orchid genera. As a matter of fact I have found that in Boston, it is only after the evening comes and I can settle down to uninterrupted studies that I make progress. It will be well for you to join with me in impatience for the end of September.

Regarding the Standardized Horticultural Names, I think I may have some reprints. One of these will go to Powell.

My understanding was that you were in funds to September. Your letter of the 18th seems to confirm that understanding. I will get a check off to you when I go to Boston next week. I think, for the present, that we may as well operate on the old basis. I agree with you that the fruits of the first year have not been all that we might wish, but I am an old hand at the game and I know that results are slow in the orchid game. On the other hand I am not sure just what the first year has yielded because I have not had the time to overhaul the field specimens and a number of you mounted specimens need attention. When I have settled down to the intensive work on Panama material that I intend to begin when I move to town, it will be time enough to express any disappointment that I may feel. You may be sure of one thing: it is worth a great deal to me to know that you are interested in our cooperative scheme and that you derive a little pleasure from it. I do not undervalue the herbarium you have contributed and I do not measure its significance by the dollar standard. I do not overlook the wealth of bottled specimens from which it will be possible to construct an illustrated flora of the Isthmus.

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I do not forget the advantage of having an incefatigable worker as a colleague. And then, think of the peace of mind in which I regard the Panama enterprise when I realize that an end has come to what was once an ever-present dread; the dread that Berlin was in possession of facts that might at any time ~~overwhelm~~ overwhelm my capacity to keep abreast of the times. If you are satisfied, then I am.

What you say about species of the *Spiranthes* alliance coming into your hands, makes me feel that you are beginning to get familiar with a field of work that is sure to yield valuable results. I am sure that once your man gets the orchid aura in his eye that you will find a large number of orchids near you that have escaped your attention up to the present time.

Habenaria, nos. 316, 317, 318 & 321. Probably *Habenaria* *alata* Hook. The toothed labellum and conspicuously winged ovary suggest this species. Determination provisional, as only flowers in alcohol have been examined. In any case this species is an addition to the flora of Panama. At present only three species have been reported from Panama. You will find a description of the species in AMES ORCHIDACEAE, IV, 273. It has been reported from Costa Rica.

The Philippine job is just about done. I begin the typing early next week. It has been a long pull, but must be counted as worth while and one more needful task completed. Now for Sched. Orch. 6. Ten plates are ready to be reproduced. It will be a dandy. But at present disappointing in the lack of C.A. orchids.

Very faithfully yours,

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September 7th, 1923

My dear Mr. Powell:

I expected to be able to send you a check in this letter, but on my last trip to Boston I was so rushed with work that the bank had closed before I gave a thought to finances. On Monday I will make up the deficiency.

Your letter of August 29th reached me to-day. I was much interested in the enclosed letter to you from Dr. Schlechter. Queerly enough, I received my first letter from him since last winter in to-day's mail. He reports that his health failed him and that his physician insisted on a complete rest from scientific thoughts. He informs me that his Costa Rican paper will appear on September 30th.

With regard to the sending of specimens to Schlechter, it seems to me that a set of your duplicate field specimens forwarded from here as an exchange will take care of him. I think you will agree with me that his reasoning is a bit at fault when he assumes that you are in a position to make one set for me and distribute duplicates where you will. As I understood our arrangement all dried specimens were to be sent here. I am sure your understanding is similar to mine. What you wish to send him from your garden is a matter wholly at your discretion. There is surely no reason for me to suppose that our co-operative basis ties your hands. That would be absurd. But the specimens collected for me are surely a part of our joint enterprise, and as to the workings of that I am sure there is no room for doubt. Until the plants are named that you cultivate, it

would seem wise to hold them pretty close.

Standley is going to Costa Rica this coming winter. Before going there, however, he intends to do some collecting in Panama. This should give you a wonderful opportunity as it is highly probable that there would be no objection to your man going along on some of the expeditions. The purpose in view is a flora of the Zone and adjacent territory. After the Panama enterprise is done Standley will go directly to Costa Rica and make collections on Turrialba and near-by mountains. He suggests that any specimens not in flower be sent to you for cultivation. I think you will welcome such an arrangement. Standley would be able to give your man an insight into the orchids of the ground that I am sure would result in his becoming a more efficient helper in our project. At least I would ask Standley to take a special interest in him and show him in the field what constitutes some of the lesser known genera which at present may not be clear even to your eye. All in all I think things are "looking up".

The package of specimens has not yet been released from the Customs. Just a bit of red-tape. You are not a bit more impatient than I am about this delay. Epidendrum 319 looks new. I have the bottle-specimen and the little packet of supplementary flowers. But until I get the herbarium material it will be impossible to be sure of anything. I am impatient to see the large flowered form of *Habenaria Warszewiczii*. It may confirm my suspicion that we simply have one polymorphic species in the Zone referable to *H. petalodes*.

On Monday I will write again and include check.

Yours always faithfully

September 10th, 1923.

My dear Mr. Powell:

I enclose check on New York for two hundred dollars. This amount is to be used at your discretion in accordance with our agreement.

The package of specimens has just come in from the Customs. The *Habenaria* species are just what I suspected they would be: 315. *Habenaria bicornis* Lindl. 316, 317 & 318 *Habenaria alata* Hook. 319 is a new *Epidehndrum*. I am calling it *E. pudicum*. But this name may have to be changed if I find that it has already been used. For the present use it. I take it up in the sense of "chaste".

A package of tracings has come in from our friend Schlechter. Most of the species are your Panama numbers. From the size of the package I should think he has had every one of the types traced. This gives us a double check on the Panama orchids of Powell.

312 is, as I suspected, *Stelis cascajalensis* Ames.

I am sorry to report that Lankester is not coming up to expectations. I am afraid his collecting is of a most desultory kind. Maxon gave me to understand that it would be wise not to set my heart on telling results from Lankester's methods. Still, I am hoping that as time goes by he will get down to a more substantial basis of work. But, until Standley goes to Costa Rica I am afraid Schlechter will continue to get the jump on us.

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discoveries would have been in print by now. That is what

I am sure that Standley's expedition will open the

of the people round Cartago and perhaps stimulate a little in

terest in the sylvan treasures of Costa Rica. Is it not

how hope rises even when adversity is prevalent?

I intend to describe and figure Epidendrum pudicum in Sched.

Orch. 6. Unless Schlechter has had it from Costa Rica and pub

lishes it in his Sept. 30 paper. We always run the risk of that.

Yours faithfully,

September 13th, 1923.

My dear Mr. Powell:

Your no. 327 (bottle specimen) has come safely to its destination. It is the same as Powell 266 (G. of a series of specimens sent some months ago). It is also the same as Killip 3190, which I originally determined as Habenaria petalodes Lindl. Structurally I have found nothing that separates the Panama species (including H. Warszewiczii) from the Brazilian species described by Lindley as Habenaria petalodes. The only differences are found in size of the flowers, and, if I am not mistaken, every gradation exists between the large flowers of typical H. petalodes and ^{the small ones of} H. Warszewiczii. If we disregard common sense, I am afraid that the orchids will become an impossible group both for the specialist and the amateur. Nothing is gained by stressing trivial characters. Once an attempt is made to erect new species on scanty material and slight deviations from a recognized type, chaos, not order, is the unavoidable result.

Epidendrum pudicum is for 319. What a delightful little species it is. It is a near, but very distinctly of Epidendrum firmum Reichb. f. It has an entirely different labellum. When I wrote to you my last letter I was not sure that this name had not been used. I find that it is all right.

Yours faithfully,

What is the normal number of flowers for E. pudicum? Only two?

355 Commonwealth Avenue, Boston, Mass. October 9th, 1923.

My dear Mr. Powell:

I know that you are going to be angry with me because I have failed to keep you informed of what is going on here. So this is just a hurried note to catch the outgoing mail. I am back on the job and your specimens are going through the mill. Here is a brief list of names for you. 311 *Pleurothallis gnomonifera* Ames sp. nov. 279 *Pleurothallis Wercklei* Schltr. (Formerly identified as *P. Wagneri* Schltr.) . 289. *Pleurothallis Wercklei* Schltr. 306 *Pleurothallis glandulosa* Ames sp. nov. 298 *Epidendrum simulacrum* Ames sp. nov. 310 *Epidendrum ionophlebium* Reichb. f. 296. *Epidendrum difforme* Jacq. a small form that is near *E. firmum* Reichb. f. I am not yet satisfied with this. 276. *Maxillaria*, apparently a new species related to *M. Tuerckheimii* Schltr. and *M. gatunensis* Schltr. I am afraid I will have to describe this. I think the balance of your specimens will be finished soon with the exception of a package which is in the Customs. They are charging \$5.25 duty on your packages and I am trying to stimulate action on the part of the authorities. Of course I can pay the duty, but unless we are able to establish a precedent it will be burdensome to handle your packages. Why not put on a lower valuation. Your bottles come through without a hitch. Why not write to the Treasury Department and ask if it is the intention of the tariff laws to make a specialist to whom you send specimens for identification pay duty on the specimens? Put this way the thing seems ridiculous. Ask if it is the intention of the United States to make it impossible for a citizen residing in the Canal Zone to get an authoritative opinion from a Harvard Professor regarding natural history specimens in which you are deeply interested. Because ~~it~~^{is} it conceivable

that such a man would welcome the opportunity of clearing up your difficulties if it cost him ~~XXX~~ \$5.25 every time you sent him a package. And that is exactly what is happening now. Whole case-loads of specimens come in here from China and the Philippines without a whimper on the part of the Customs. Why should you suddenly be singled out as a victim of Government greed. And only two packages of the many you have sent have been under a duty charge. I am now waiting for definite action on the part of some friends in Washington. But, I think it would be well for you to enter a protest.

Remember this is just an attempt to let you know that I have not forgotten you and that from now on you may expect prompt replies to your letters and quick determinations of your specimens.

Yours sincerely,

355 Commonwealth Avenue, Boston, Mass. October 10th, 1923.

Dear Mr. Powell:

The package with the *Hexisea* species came through all right, this morning. This package came by the Port of Boston. In future it will be wise to send by Boston boats. The Custom officials of Boston seem to have more education than those of New York. So much for that.

333 *Hexisea oppositifolia* Reichb. f. This differs from *H. bidentata* in the outline of the perianth segments and in the heavy callus on the base of the labellum. It is a mighty rare species. I know it from the Mexican type. I am surprised to have it turn up in Panama. I should like to see more material of this species. Up to the present time it has been difficult to do much with the *Hexisea* species as they are not well represented in herbaria. Only about five species have been described. The one doubt regarding *H. bidentata* is the fact that your material does not exhibit the bidentate character of the column wings on which Lindley founded the specific name.

I turned up a new species of *Pleurothallis* today among Lankester's specimens; an odd little thing with an elongated rhizome and alternate orbicular leaves. I am publishing this in Sched. Orch. 6.

Many thanks for the additional specimens of *Epidendrum pudicum* sp. nov. There is no doubt but that this is a notable addition to the genus. I have it figured and described for Sched. Orch. 6.

Mr. Schweinfurth has a fresh supply of bottles for you. It is surely a profound pleasure to work on your species when the alcoholic material is at hand. A word of advice: When you send Stanhopeas, Coryanthes and similar things, it will be well to put cotton in the bottles to keep the flowers from swashing about. Unless they are guarded in some way they break. It would also be well to use very weak alcohol and let us strengthen the solution here. But such bottles should be marked. Weak alcohol prevents brittleness.

305 may be new. I have been unable to run it down, but it may be a color variation.

307. *Maxillaria* sp. Only one flower with the specimen. This is closely allied to *M. curtipes* Hook. f. but the sepals appear to be narrower etc. This may be new. I would rather wait for additional material before describing it. It is also close to *M. Powellii* Schltr. but different.

In a few days I will have more determinations for you. I intend to be very punctilious and at short intervals I will send you bulletins to keep your spirits high.

With the best of good wishes,

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass. October 12, 1923

My dear Mr. Powell:

Just a few lines to assure you that your interests are not neglected.

I got the package from the Customs yesterday and in the evening worked up #323. I can almost lay this over the Reichenbach sketch of Epidendrum turialvae. It is a perfect match for it and substantiates my belief that Schlechter made a mistake in his identification of your 233. The narrow leaves, racemose rather than paniculiform inflorescence, and the structure of the labellum are in perfect agreement with Reichenbach's interpretation of E. turialvae. The only difference is in the color of the lip: Reichenbach having originally described this segment of the perianth as being white. Please keep on the lookout for more of this exceptionally rare thing.

314. *Acineta chrysantha* Lindl.

321. *Habenaria alata* Hook.

326, 327, 328. *Habenaria petalodes* Lindl.

320. *Campylocentrum* or *Harrisiella* sp. This may be new. I will report later.

I expect to finish up all of your material before the end of next week.

This morning I turned up a new Costa Rican orchid among Lankester's numbers. A new *Epidendrum* of the *E. prorepens* alliance but with much larger flowers and a very deep keel on the sepals. The sepals and petals have the characteristic median line that is so conspicuous in *E. prorepens*.

This week two stenographers have been busy making copy of the Philippine list for Merrill. That has been a distracting element in the quiet of the laboratory.

Please send your packages by Boston bound steamers. The New York Customs do not discriminate between specimens for scientific study and specimens for increase of collections.

I am working on your 309. This is a *Chysis*, but I want to study it closely for the specific rank.

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass.

October 27th, 1923.

My dear Mr. Powell:

The last package came through all right. I have examined the specimens and find much of interest in them. 338 looks suspiciously like a new *Epidendrum*. 325 is a puzzle. As I see it now it is a new species of the genus *Poellaea*^{*Ruellia*}. It will be necessary to follow this a little farther before arriving at a definite conclusion.

Sched. Orch. 6 comes out next week. The plate of *Epidendrum pudicum* has already been mailed to you. I am sure you will enjoy our attempt to perpetuate this species in a worthy manner. The alcohol material made possible a faithful portrait of the plant.

I am now planning to issue series of plates in future issues of Sched. Orch. that will illustrate the species published in the earlier pages. I think this will be an acceptable contribution to the studies of Central American orchidology and make my little periodical take on real value. In connection with this work it would be well if you included a leaf or two in the bottles that contain the smaller fry. The plates for Sched. Orch. 7 are already in progress so that you will have something to look forward to.

I am very much interested in Maxon 8452 from Nicaragua. Living plants were sent to you. I think this is *Epidendrum lacustre* Lindl. Take care of it and if it flowers have a photo made before pressing.

Yours in haste,

355 Commonwealth Avenue, Boston, Mass.

November the first, nineteen twenty-three.

My dear Mr. Powell:

A check will go to you to-morrow.
A few determinations have accumulated.

- 322. *Epidendrum ramosum* Jacq.
- 324. *Ornithidium anceps* Reichb. f.
- 68. *Hexisea bidentata* Lindl.
- 294. *Stelis perplexa* Ames.
- 309. *Chysis aurea* var. *maculata* Hook.
- 313. *Catasetum viridiflavum* Hook.
- 292. *Epidendrum Mooreanum* Rolfe.
- 302. *Stanhopea bucephalus* Lindl.
- 303. *Stanhopea bucephalus* Lindl.
- 295. *Stanhopea bucephalus* Lindl.

302, 303, 295. These numbers have given me a great deal of trouble, notwithstanding the alcoholic material. Structurally they are one and the same. Here one might include *S. costaricensis* Reichb.f. If you do not agree with my conclusions. Yell!

Your remarks about *Pleurothallis Hunteriana* are interesting. If your suspicions are justified, then we must accuse Schlechter of improper description. He gives the petals as 1-nerved. In *P. hamata*, they are 3-nerved. He described the sepals as free. In *P. hamata* they are united to about the middle. And then again, what is *Masdevallia aperta* Kraenzl.? I think it is *P. hamata*. But Kraenzlin described the sepals as keeled on the upper surface. Did he mistake the keel for the inner margin of the sepals? I have yet to take this matter to Kraenzlin, but I intend to do so shortly.

On your field labels please include the year. And, when possible be more definite. Maxon does not approve of "Hills east of City." Localize specimens as closely as possible. The field data are of deep significance. Then against state whether the date given refers to the flowering time in your garden or to the date when plant was collected. While these data may be a nuisance, they are essential for the geographical notes.

Sched. Orch. 6, over one hundred pages, comes out on Saturday.

I have begun making your field specimens ready for the herbarium. I wish you could see how they look. I was pleasantly surprised to see what a fine showing they make. You have done a great piece of work. If you keep on, and improve in your methods, you will have assembled the best exemplification of Panama orchids in the world. I think you have already done that.

I have been making an exhaustive study of *Pleurothallis Brighamii* Wats. To this species I refer your 274 & 275. I am figuring this species in Sched. Orch. 7. Also *P. glandulosa*.

to Your specimens now hold the field and I will send you the determinations as they accumulate.

Yours always faithfully,

355 Commonwealth Avenue, Boston, Mass.

November 8th, 1923.

My dear Mr. Powell:

For over a week I have been busy with a collection of orchids from Salvador, Nicaragua, Panama and Costa Rica for Mr. Maxon and Mr. Standley. Every afternoon I have come to my senses with a start and reminded myself that I owed you some money. And then I would find that the hours had slipped away and that the banks were closed. This morning I decided to attend to your business first of all. Hence, a check is enclosed for two hundred dollars. So much for that.

I have very little of interest to report.

3149. This proves to be *Hexadesmia pachybulbon* Schltr. I agree that slight differences occur, but comparison with Schlechter's sketch and a close study of all available material convinces me that only one species is in hand.

333. *Hexisea oppositifolia* Reichb. f. I have already reported on this under your field number.

330, 331, 336, 337, 339. These numbers represent *Habemaria petalodes* Lindl.

Before you get this, Sched. Orch. 6 will be in your hand. I hope this number will please you. I have about ten Central American species of *Pleurothallis* already figured for Sched. Orch. 7. I also have a handful of new species ready for publication. I hope to be able to go to press next month. In the meantime Schlechter's long delayed magnum opus may come to hand, although I am at my wits end to understand how he can publish anything in Germany under the prevailing conditions.

Yours faithfully,

November 23, 1923.

My dear Powell:

Your 335 is certainly the long lost *Pleurothallis fulgens* of Reichenbach. And I think your 340 is the same thing. Your 338 I am calling *Epidendrum glandulosum* sp. nov. as it seems to be new and is characterized by having glandular ovaries and sparse glandular projections on the nerves of the sepals (outer surface). The plant I call *Rolfea* is a new species. At least I have found nothing to match it. From *Rolfea elata* Zehlbruckner, a Trinidad species, it differs in size of plant and flower. The structure of the flower is certainly that of *Rolfea*. For the present call the species *R. Powellii*. *Rolfea*, until now, has been regarded as a monotypic genus, so you have the honor of adding the second species. Please turn up some more of 338. This is a queer species. I have seen nothing just like it. It is surely new to Central America.

There is some doubt about the *Restrepia* 344. It is allied to *R. Powellii*. But S.'s description does not agree with the flower sent with your 123. Are you sure you sent me typical *R. POWELLII*? Until I hear from you I am putting aside your 344, ~~regarding~~ and regarding 123 as doubtful. Faithfully yours.

Ⓐ

355 Commonwealth Avenue, Boston, Mass. Dec. 11, 1923.

My dear Powell:

Just a few lines to accompany a check for two hundred dollars.

I have described the new species of Rolfea in your honor. I expect to get this to press within a few days. I have been held up by the slow progress being made with the illustrations of Pleuro-^{be}thallis. There must/thirty or more species already done, most of them Costa Rican. I think this attempt to record my recent proposals in a highly technical genus will meet with your full approval and give you something definite to turn to when you wish to see what I have done in the past year. If all goes well I intend to keep issuing plates of Central American species.

By this time you must have had a delightful meeting with Standley. Tell me all about it when you write again.

Yours faithfully,

With the best of good wishes for you and your daughter in which Mrs. Ames and Pauline join, I send you holiday greetings.

355 Commonwealth Avenue, Boston, Mass. December 26, 1923.

My dear Mr. Powell:

I suppose you are laboring under the impression that I am forgetful of your existence. The truth is, I have been busy keeping abreast of my work and driven pretty hard by the numerous duties that are mine to attend to. On top of everything, Schlechter's Costa Rican paper came in. I have been much perplexed by this publication and I imagine it will take the better part of the winter to assimilate and digest its numerous proposals. I hope this Costa Rican venture puts an end to Schlechter's Central American efforts for some time to come.

I sent off to the mounter the greater part of your "field specimens", last week. Among them was the *Scaphyglottis* in which you are interested. I will have the specimens in hand again in another week, and then I will give my undivided attention to this genus until your questions are answered and your mind is put at rest. I cannot leave this subject without telling you that your specimens will make a creditable showing in the herbarium and that they are a source of great joy to me. Some of the specimens are perfect examples of herbarium technique and I am sure that you can keep up with the best of the leaders. I am overjoyed to have the different localities represented and to know that you are working conscientiously in my interests. Surely I have in hand the best collection of Panama orchids that exists. If you keep at work, there will be no hope for future rivals.

I am afraid we must change Epidendrum brevicaulis to Epidendrum Schlechterianum. Schlechter published an earlier species under this name, therefore it is untenable for the Panama species. Kindly take notice, but refrain from using the new name until it is published in Sched. Orch. 7.

Cf. your letter of November 6.
Lockhartia. The top one is the best match for
Reichenbach' L. Cerstedii.

3

Yours faithfully,

Ober Ober

355 Commonwealth Ave. Boston.
January 8th, 1924.

My dear Powell:

I feel that I should go down on my knees before you to beg your pardon for what must seem to you unkind neglect. The truth is, I have been called to Cambridge almost every day in connection with the reorganization of our Botanical Museum. But I have your desiderata in mind, and when your specimens return from the mounter, I will attend to them.

Dr. Barbour has started for Panama to begin operations at the Barro Colorado laboratory. I have asked him to get in touch with you regarding opportunities to collect there. I have also asked him to send to you any specimens he may pick up in his wanderings about the Isthmus.

Know thou that Lankester has been sending in some delightful material. His "Christmas package" contained several noteworthy additions to my herbarium and supplied useful data for Sched. Orch. #7. It would seem that Lankester is in a wonderful orchid country and that a little more diligence on his part would yield results of an important scientific nature. I am afraid that he neglects his opportunities, but for what he has done for me I am unable to measure my thanks. If he would only realize that what is common in his estimation may be jewelry in mine, I am sure he would be more assiduous & gladden my heart with a treasure-laden stream of packages.

I suppose Dr. Standley is about ready to move northward to begin his Costa Rican campaign. I am sure your relations with him were pleasureable and that in the give-and-take of your association he made suggestions that you may find profitable.

What about fruits of Vanilla pompona? Also fruits of Selenipedium Chica? These are sadly needed for the Museum of Economic Botany. I am relying on you to help me with any material that seems to have promise as economic material.

Pleurothallis Hunteriana is a synonym of Pleurothallis aperta Ames (Masdevallia aperta Kzl. Pleurothallis hamata Rolfe). This observation is based on an examination of types.

I am enclosing a check for \$200.00. I hope this will reach you safely and give you a little satisfaction.

God bless you.

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass.
January 14th, 1924.

My dear Mr. Powell:

Here are a few determinations to keep
you busy for several minutes.

2458 (257) *Oncidium confusum* Reichb. f. (Kew 133).

161 *Oncidium Reehingerianum* Kraenzl..

177 *Oncidium Reehingerianum* Kraenzl.

These determinations represent several days of hard work on all available material. It seems to me that Schlechter's determination of Powell 161 and 177 was incorrect. This group is a puzzling one it is true, and I imagine that the last word about it is still to be said. *Oncidium cerebriferum* Reichb. f. is a perplexing species because the type in Herb. Reichb. f. consists of single flower. Mrs. Ames made a sketch of this flower when she was in Vienna with me. On that sketch and on Reichenbach's figure in *Xenia Orchidacea*, I have relied for my conception of the species. The tip of the labellum in 161 & 177 has an inverted-V-shaped excision, a characteristic that is foreign to *Oncidium cerebriferum*, but very clear in *Oncidium Reehingerianum*. I am sorry to upset your nomenclature, yet you will welcome, I am sure, my final(?) conclusions. The type of *Oncidium Reehingerianum* came from Costa Rica where it was collected by Endres. I have very clear photographs of the type.

~~XXXXXX~~ 349 *Scaphyglottis Wrecklei* Schltr.

3425 (211) *Scaphyglottis laevilabium* Ames.

350 *Epidendrum strobiliferum* Reichb. f. Cf. Ames *Orchidaceae* vol. 1. for plate. In my opinion *E. verecundum* Schltr. is simply *E. strobiliferum*. I cannot sanction the use of subtle variation from a preconceived type as sufficient warranty for the multiplication of weak species.

I have been at work on your *Maxillariasp.* recently received. I cannot place it. It appears to be a new species.

Just as soon as the specimens promised in your letter of January 2d, reach here, I will give them immediate attention.

Sched. Orch. 7 is still in preparation. That is why you have not received a copy. The illustrations have taken much time in preparation. I hope to go to press shortly, but I will await your package before closing the manuscript.

With best wishes,

Yours faithfully,

355 Commonwealth Avenue, Boston, Mass.
February 5th, 1924.

My dear Mr. Powell:

I have been simply driven to extrmitities with the routine work of my profession. The determinations herewith submitted were arrived at some time ago, but I delayed sending them to you because there seemed too little time to write them out.

352. *Epidendrum rigidum* Jacq. var. This material is not typical. The pedicels of the flowers are so long that they give to the inflorescence quite an unusual aspect. For the present I am simply passing this number as a variety.

353. *Elleanthus linifolius* Presl.

356. *Ponthieva racemosa* Mohr.

357. *Macradenia brassavolae* Reichb. f.

358. *Scaphyglottis amethystina* Reichb. f.

359. *Scaphyglottis pauciflora* Schltr. Probably.

360. *Scaphyglottis amethystina* Reichb.

In a letter received this morning from Lankester I understand that Standley is in Costa Rica. This is good news because I am sure that he will deliver the goods. Up to date I have found Lankester a very casual collector. Standley's results will indicate whether or not my assumptions are correct.

I started this morning the task of getting Sched. Orch. 7 ready for the printer. The plates and tex-cuts are done and I imagine that the day of publication will be in this month. I am sorry to have delayed this number, but I really could not give it attention. What spare time I have had has been devoted to my comprehensive list of the Orchids of the United States and Canada which is to appear in May at the opening of the big orchid show and to be the big gun of the Orchid Society program. This list is to be printed in the very best manner and will, I hope, be a classic in its line. The sample pages are delightful. You shall have a copy. To get this work done in an authoritative manner so that it would stand as a distinct contribution to the orchid literature of our country as well as a beautiful example of book making, has necessitated a heap of critical work.*

By the way, *Macradenia* and *Ponthieva* are additions to the genera of Panama. Good work.

The customs tangle is about settled. My friend Eliot Wadsworth of the Treasury Department has been at work from this end and I believe our troubles are at an end. So much for that disturbing incident.

Dont overlook my economic botany. Specimens of useful plant products will always be welcome as well as herbarium specimens of any queer *wafel* things. If you could get to me by some friend samples of the ears of corn as grown by the Indians, you would be sure of my blessing. It would be necessary to send such things through Maxon or somebody in Washington on account of the quarantine. You see, my desires are far reaching and keep me pretty busy in life.

Your herbarium is growing a bit slow just at present. I intend to mount your photographs on the sheet of *Rolfea Powellii*. I like to have the herbarium a record of collectors as well as of plants.

Now I must get to bed. The shortcomings of this letter must be attributed to haste, and to that let-down that comes at the end of a busy day. I would like well to be wandering about your garden with you. A sleety rain is falling to-night and the sidewalks are treacherous. With you the lights of Balboa look inviting in the tropical night.

Yours faithfully,

* I mean to your collection.

355 Commonwealth Avenue, Boston, Mass.

March 13th, 1924.

My dear Powell:

My last letter to you was written on February fifth. At that time I gave you to understand that I was being driven pretty hard by the numerous duties that I take on for the benefit of my correspondents. There has been no let-up, and the days come to me with added burdens. This afternoon from one-thirty until five-ten, I read proof of the American Orchid List. Proof of *Schedulac Orchidiana* No. 7, is also coming in. And on top of this I have a paper for the Boston Post, on the origin of agriculture, and for the American Orchid Society, a lecture to be prepared for the May meeting. The routine work of the laboratory has been devoted to specimens received from Washington and from the New York Botanical Garden. Outside the door there is a tall packing-case full of Philippine orchids that arrived two weeks ago. The cover has not yet been removed. I have not yet had time to work up the orchids I collected in Honduras last year; in other words, my own interests wait on the pleasure of my friends. To-day I began work on a recent collection received from Lankester, and I have begun again to examine your specimens. If after reading the above, you think I have been neglectful of your desires, add to everything I have mentioned, my work at the Botanical Museum where I have had in hand the reorganization of the collections.

I ran up to the bank this afternoon to get a check for you. I send this enclosed, and I am ashamed to confess that I do not know how far behind in my payments my neglect of you has carried me. Please let me know how your books stand, and I shall be prompt in extinguishing my indebtedness to you,

POWELL 371. This is a mighty interesting addition to your list. It is Trichocentrum panamense Rolfe. Whether or not this will prove to be distinct from T. capistratum Reichb. f. is a question for which the answer lies in additional material.

Some time ago you sent me a list of desiderata with the gentle reminder that I was behind hand in my work. My reply follows:

- 270. *Oncidium kymatoides* Kraenzl.
- 276. *Maxillaria* sp. nov.
- 305. *Coryanthes* sp. nov. probably.
- 307. *Maxillaria* sp. nov.
- 308 *P. Paphiopedilum longifolium* Pfitzer.
- 320. *Campylocentrum* sp. Flowers immature. Indeterminable.
- 334. *Stelis oximia* Ames.
- 342. *Epidendrum* sp. indeterminable.
- 345. *Stelis* sp. indeterminable.
- 346. *Habenaria petalodes* Lindl.
- 348. *Maxillaria* sp. nov.
- 351. *Catasetum Oerstedii* Reichb. f.
- 344. *Rostropia* sp. nov. very probably.
- 301. *Oncidium*. Material temporarily misplaced.

All of the new things will be published in *Schedulae Orchidiana* No. 8.

Sched. Orch. No. 7, with some of your novelties and figures of a few of them is expected from the press next week or early the week after next. The delay with regard to this publication was caused by the difficulties encountered in preparing some forty-four species of Central American *Plourothallis* for illustration. The mechanical work connected with these publications is greater than you imagine.

Your letter to Schlechter is all right. I intend to send to him a complete set of the duplicates of your field numbers, just as soon as he discharges his indebtedness to me. At this time I think he is behind hand in our exchange because of the high cost of postage, although I have sent him money to be used for paying the cost of mailing his letters and packages to me.

Standley writes to me that he is making a satisfactory campaign in Costa Rica. I glean from his communications that he is taking everything and finding great numbers of interesting species. Lankester still falls below expectations, but his specimens though few are beginning to look like material destined for the herbarium rather than for the scrap-heap.

I am awaiting with patience a report of the final results of your recent expedition. I am sorry that the first stop proved disappointing. Undoubtedly you have had better luck than you experienced up to the time of writing to me from the field. I

hope so.

In your last package there were one or two interesting species that will prove to be additions to your list. I got these out this forenoon and just as soon as I finish with a few of Lankester's numbers, I will have a go at yours.

I hope you met Tom Barbour. He promised to get in touch with you and he assured me that he would send to you any orchids he happened to find in his wanderings after zoological material.

In your last package I found a pair of your forceps. I sent these to you by return mail.

I have not heard from Schlechter ^{since} ~~his~~ number. This I do not understand, unless he is ill, or angry about something. I think he resents some of the notes that have appeared in Sched. Orch. as they correct some of his slips and refer to some of his bad blunders. Furthermore, I am afraid that he resents what he considers my effort to take away from him your valued assistance. As to this, you know perfectly well that there is nothing in our relationship that indicates unfairness or underhandedness where Schlechter is concerned. But, he is a queer fellow, if I am not mistaken in my judgement of him, and I know that he feels hurt when anybody jostles him.

I sometimes wish that I had nothing to do and twenty-four hours to do it in, but with the world full of people who need what little I am able to give in the way of assistance, I have to keep busy. A friend of My daughter's asked her the other day how I happened to single out orchids for a professional venture. He wondered why Nasturtiums would not have done as well. Is it not fortunate that we differ in our outlook on life and that some of us still find time for the beautiful as well as the useful in the work that must be done to make the world an intelligible abode for our species?

Yours always faithfully,

C. W. Powell Esq.,
Balboa, Canal Zone, Panama.

\$ 2.00 enclosed.

March 24, 1924.

My dear Powell: A package of specimens has just come in. A casual glance shows some interesting species on which we are now at work. I pounced on your 380 because I recognized in it a most rare thing which I only know through the type at Kew and the sketch in the Reichenbachian Herbarium. This is the *Epidendrum caligarium* of Reichb.f. described from incomplete specimens sent to Kew by Wentworth Buller many years ago. It was at first thought to be a variety of *E. myrianthum*, but is quite distinct from it. Schlechter in his Central American list, ascribed the species to Mexico, but on what authority I do not know, as Buller stated that his plants came from New Grenada, (now Colombia). Dear old Reichenbach was satisfied with "Central America". Now we know that Panama is the native land of this peculiar species. I intend to have a drawing made and I shall write up your material for Sched. Orch. 8, which is now about to be begun.

Sched. Orch. 7, came out on March 20th, but the impressions of the plates were so poor that I decided to have them reprinted. A copy should be available for you by to-morrow. You will enjoy this number because it illustrates a number of recently described species from Costa Rica and Panama.

Standley has been very busy and from good letters he has written to me, I am under the impression that his orchid collections are large and critical.

In package received to-day I noted an economic species. What is it and for what is it used.

Yours faithfully,

Arthur S. Peck

NATIONAL RESEARCH COUNCIL

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OF THE

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BOTANICAL RAW PRODUCTS COMMITTEE

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MURSEY BUILDING

Cyrtopodisma cristatum; Flowers of the type.

Sepals ± 14 mm long and about 8 mm wide. Corolla undulate Provenance
9-nerved elliptic-ovate, basally acute, rather fleshy in texture. Petals
diverge from a broad cuneate base, 13.25 mm long, 7 mm wide about
the middle, about 8 mm wide near the base, rounded at the apex,
apparently without ^{g-mucro} ornamentation. Labellum about 12 mm long,
conspicuously 3-lobed, the lateral lobes larger than the middle
one. Comparatively short clawed, articulate with the column foot,
fleshy with ~~long~~ coarse nerves. Claw oblong cuneate 4 mm long,
2.5 mm wide near the middle. 5-nerved, lateral lobes cuneate-fusiform or orbicular,
7 mm long and wide, approximately 4 mm wide where they join the main
body of the lobe, heavily 5-nerved; middle lobe 5 mm long, about 4 mm
wide, ~~fringed~~ by about 13 ~~nerves~~ ^{nerves} at the apex not emarginate, margin smooth,
situated at the side between the lateral lobes subparallel, converging
extending into the claw, 2 mm wide at the base, 1 mm long,
long. Column fleshy, 6 mm long to the point of insertion of the
upper sepal. ~~Pistil~~ ^{Pistil} and ovary 11 mm long slender. Flowers in dense
matrices of a deep brassy color.

British Guiana & Surinam, 1883.

Copy

154

December 20, 1922

My dear Dr Schlechter:

I am today in receipt of your very welcome letter of Nov 23rd., and I note with great pleasure that you have at last completed your manuscript and have it ready for the printers; and that you are awaiting the remittance of the Thirty Dollars promised by me, as a contribution towards the cost of printing it. It is also with the same pleasure I am sending you the \$ 30.00 in U.S. Gold notes. Will you kindly hurry the pamphlet through the press, as I have been much embarrassed by its not coming out- having promised copies to my friends in the States and the Americas, for delivery last spring as per your several letters.

You can also print the consecutive number list, leaving out the missing numbers as "cancelled". I am so anxious to have the pamphlets, that I am willing to forego a full consecutive set of numbers. These missing numbers will be cancelled by me on my lists and will not be used again. All plants represented by these missing numbers will be given new numbers, higher than No 257, the highest in your determinations.

I have noted and made all corrections, as given in your letter. I would call your attention to a seeming error on your part, viz: No 154 *Trichopilia suavis*, Lind, alba. This should be *Trichopilia marginata* var alba. The pseudobulbs of this are typical of *marginata*- besides you have already determined No 135 with the round flat *T. suavis* bulbs, as *Trichopilia suavis*, floribus albis. (Please refer to No 135)

Have you compared No 83 *Encyclia Powellii*, Schtr, with *Epid. ramonense*, Reich.f. if not please do so. Do you not think that No 84 *Encyclia* (*chiriquense*) *Hunteriana* is *Epid. alanjense* of Ames, as published in his *Schedulae Orchidiana* No 1, for Nov'r? I do.

Please hurry, hurry out the pamphlet from the press.

Very sincerely yours

C. W. Powell

THE PANAMA CANAL
CANAL ZONE
HEALTH DEPARTMENT

155
IN REPLY REFER TO FILE

Balboa Dispensary, December 20, 1922

Dear Dr Ames:

Mermedes and Cyneches will soon begin to flower.

These are miserable things to make a decent pressed specimen of.

As there is such a variety of colorings shown, which are hard to preserve, how would it do to send you bottled specimens of each as it flowers, so that you can get these colorings more nearly in flower your descriptions?. I have observed that the bottled specimens retain their colors, nearly, for about 2 weeks and sometimes more.

For the past few days the sun has delighted every one, the weather is ~~xxx~~ fine, and the flowers seem to appreciate it as much as the humans.

I have a nice bunch of Masdevallias nearly ready to open up. They are from Chiriqui.

The mail is in today from New York, and I am expecting a letter answering several of my recent queries. Had a nice letter from Lankester, he says he is getting you some specimens ready.

Sincerely yours

C. W. Powell

This letter was written this am. and held awaiting the mail of afternoon, which I intended to reply to; but, I thought Schechter's letter more important to send you and I had to copy it, after my other work

BALBOA, C. Z., PANAMA December 25, 1922 192

My dear Dr Ames:

A MERRY CHRISTMAS TO YOU , AND A HAPPY NEW YEAR .

I am sending you by mail tomorrow bottled specimens of

No 95	Encyclia tessellata	Batem	Schtr
129	Leiochilus Powellii		Schtr N.S.
172	Pleurothallis diuturna		Schtr N.S.
219	Pleurothallis pyrsodes		Reich.f.

Herbarium specimens have been heretofore sent you.

267 Oncidium -----? N^o 133 in Kew specimens
268 Masdevallia -----?
269 -----?

I am sending these three last in advance of the herbarium specimens because I wish you to see the color scheme as nearly as possible. The herbarium specimens will come on in a few days.

I am enclosing you herewith a colored drawing of No 269 flower. It was made for me from a live flower under X 10 of microscope. It is a free hand, but the colorings are as near the flower as could be matched. It was made for me by a New York artist who is taking a vacation here. The same artist who made the Stanhopea, which you now have. This is a most curious flower formation, one that I cannot recall as having seen in print. The bulbs resemble a Lelia anseps in shape, placed about one to two inches along a running rhizome. The flower stem hangs pendant from base of bulb. The leaves and bulbs are a light colored, shining green. Diphyllous, with no auxilliary side leaves. A clean looking plant. What can it be ?.

Most sincerely yours

C. W. Powell

The round looking central part is a tongue
hinged at the back of lower part & can
be pulled ^{forward and} down. (at least so it seemed
to me in examining the tiny flower)

like a red tail - dark purple
& dotted - fleshy.

Memorandum of the letter which I propose for Dr Schlechter.

Make any suggestions you may see proper.

My dear Dr Schlechter:

I have entered into a contract with Dr Oakes Ames, of Boston, to make a complete Orchideological survey of the Isthmus of Panama- he financing the undertaking. My men are now out going thither and you in pursuit of this end.

As it is incompatible with this contract that I should send any specimens from this time to any other person or garden than to him; ^{therefore,} specimens in future, can ~~be~~ only be procured from him.

In severing our direct relations, I wish to thank you for your uniform courtesy and to assure you that I will be pleased to receive letters from you at any time, and to serve you in any way that I can consistently, or that will not interfere with my obligations to Dr Ames.

Very sincerely yours

as it will take about a month for you to return this, I think sufficient time will have elapsed to cover the issue of pamphlet, and it can then be sent on.

C. Powell

BALBOA, C. Z., PANAMA December 22, 1922 192

My dear Dr Ames:

I am mailing you by registered mail tomorrow, as advised in my letter of 20th, the following specimens, which will, I hope prove interesting.

No	43	Epidendrum, fragrans	Schw, var	Schtr
	45	Bletia, purpurea		D.C.
	131	Nidema, Boothii, var triandrum — Type —		Schtr N.V.
	215	Pleurothallis, trachyclamys		Schtr N.S.
	244	Epidendrum, Porpax		Reich.f.
	246	Lycaste, macrophylla		Reich.f.
	247	Stellis, Powellii — Type —		Schtr N.S.
	248	Warscewiczella, aromatica		Reich.f.
	252	Pleurothallis, octomeriae — Type —		Schtr N.S.
	253	Sobralia, epiphytica		Schtr
	254	Lepanthes, chiriquensis (one of several plants growing together, logically a type plant)		Schtr N.S.
	255	Osmoglossa, acuminatum — Type —		Schtr N.S.
	256	Maxillaria, arcocharis — Type —		Schtr N.S.

~~3000 Selenipedium, chica Reich.f.~~
Stied up bundle without these, overlooked that they were not in it. will come with next lot.

Notes on above-

- 131 Where is described Nidema, Boothii- Schtr. I cannot find it.
- 215 I have held this a long time hoping for more flowers, but no. I will not forget to send them when possible.
- 246 I regret cannot send plant specimen, but at this time only have one plant. Will get more when I go to Chiriqui.
- 255 Where can I find this genus recorded. Is this a new one.

Very truly yours

C. Powell

P.S. This letter and package will go by a fast liner from Chili going through the Canal on Sunday morning, and will probably reach you before my letter of 20th by regular packet.

*I am too tired tonight to write in answer to yours of Dec 5. as promised last night. Have had much to do today and this evening.
Kindly correct my Enquiry as to Mormodes & "Cycnoches", and make it read Mormodes & Catacetrus.*

355 Commonwealth Avenue, Boston, Mass.

January 10th, 1925.

My dear Mr. Rowell:

I enclose a list of the numbers regarding which you need information. The last number on the list, I refer to 416, does not seem to be here. It may have been misplaced. In that event it shall be found and the name sent to you.

Next week I intend to begin the printing of the next number of Sched. Orch. This looks like a resumption of the work I had to put aside while attempting to pick up the threads of business. I have had a hell of a winter. I am glad to be able to tell you that my affairs are in good shape again and that I am now in a position to be more useful to you than ever before. I sincerely hope that you have been in possession of a complete realization of the diversified jobs that have been thrust upon me and that you believe in me sufficiently to know that I have not been silent out of choice.

Standley has just written to request that I do the orchid part of his Flora of the Canal Zone.

Many wishes for a Prosperous New Year and a complete return of good health ,

Yours always faithfully,

Chas. C. Standley

attention Mr. Schweinfurth. Please fill in names for these numbers. Use ink.

List of unreported upon in Numbers 361 to 416

No 364	Bulbophyllum pachyrrachis (A. Rich.) Griseb.	Sent Jan 28	1924
365	Scaphyglottis albida (Rehb. f.) Schltr. ex char. & icon.	"	"
366	Stenorrhynchus sp. a pucalia x perhaps A.S. (immature)	"	"
366	Polystachya masayensis Rehb. f.	"	"
367	Scaphyglottis albida (Rehb. f.) Schltr.	"	"
368	Ornithocephalus bicornis Lindl.	"	"
369	Scaphyglottis albida (Rehb. f.) Schltr.	"	"
373	do " "	Feb 9	"
374	do " "	"	"
375	Oncidium stipitatum Lindl.	"	"
378	Scaphyglottis albida (Rehb. f.) Schltr.	Mar 8	"
— 379	? I believe a new sp.	"	"
381	Epidendrum prorepens Ames	"	"
384	do conophlebium Rehb. f.	"	"
385	Scaphyglottis albida (Rehb. f.) Schltr.	Mar 26	"
386	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	"	"
387	do " "	"	"
388	Sarcoglottis picta (Anders.) Kl. atypical	"	"
389	do " " "	"	"
390	do " " "	"	"
391	do " " " atypical	"	"
392	do " " "	"	"
393	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	"	"
394	Sarcoglottis picta (Anders.) Kl.	"	"
395	do " " "	Apr 8	"
396	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	"	"
397	Oncidium bathmii Schltr. ex char. & drawing	"	"
398	Sarcoglottis picta (Anders.) Kl.	"	"
399	do " " "	"	"
400	Notylia Pentachne Rehb. f.	"	"
401	do bipartita Rehb. f.	"	"
402	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	Apr 18	"
403	Epidendrum Is this one of the last sp.? No. radicans Par.	"	"
404	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	"	"
405	Notylia Pittieri Schltr. ex char.	"	"
407	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	May 7	"
408	do " " "	"	"
409	do " " "	"	"
410	do " " "	"	"
412	Vanilla Pompona Schiede	"	"
413	Pleurothallis Otomeria costaricensis Schltr. ex char.	May 26	"
414	Stenorrhynchus orchioideus (Sw.) L.C. Rich.	"	"
415	do " " "	"	"
— 416	Oncidium	"	"

I feel quite sure that the Sarcoglottis numbers represent two species, with opposite hybrids in the lot.

That the Stenorrhynchus numbers may represent two species only. I don't know which. But I wish this opinion confirmed by you.

C. W. Powell
Balboa, C. Z.

379. Inadequate material. Awaiting more flowers.

416 - No record found.

342. Epidendrum sp. awaiting more flowers.